CONFIDENTIAL

ADDSECURE

Roadbox5

Onboard

Installation Guide
and
System diagnostics

IMPORTANT: PLEASE READ AND UNDERSTAND ALL THESE INSTRUCTIONS BEFORE COMMENCING INSTALLATION. PLEASE LEAVE THIS MANUAL WITH THE CUSTOMER FOR FUTURE REFERENCE.

Version 1.7.0

Before installation

All steps in the installation manual are mandatory otherwise the installation will not work!

Before starting the installation, make sure you have access to the following;

1. Log in credentials to "**Installer WEB**" (*can be provided by Customer or AddSecure Support*)
    - URL: http://install.codriver.com

2. Company **installer code** *(ex.11U241B9)* to "**Installer WEB**"
   (*can be provided by Customer or AddSecure Support*)

3. **Subscription number** and/or **Vehicle identification** in the system to be installed (*can be provided by Customer*)

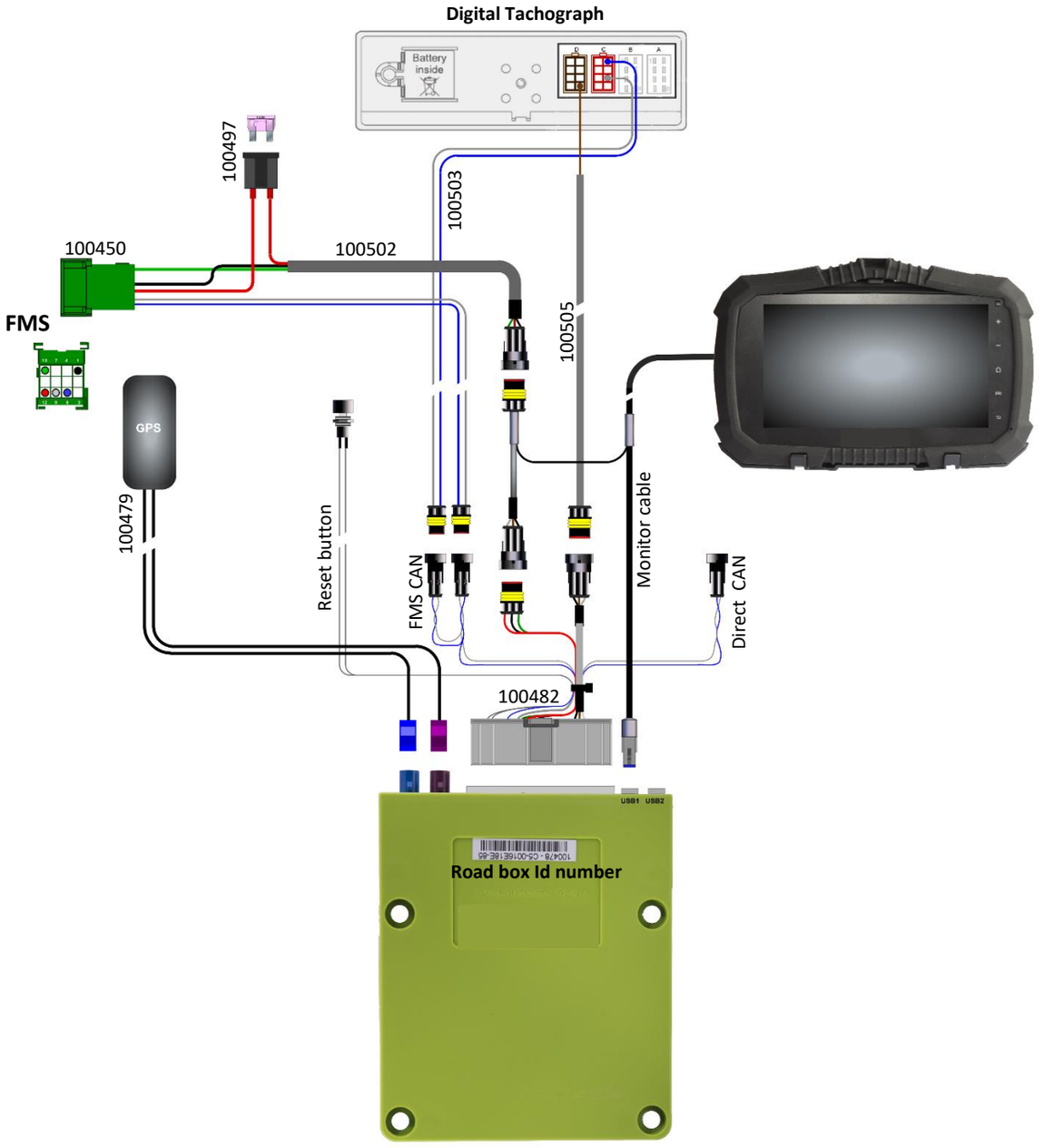
Tools to disassemble the dashboard

Device: computer, tablet or phone with access to internet

Pliers for insulated cable shoe from 1.5-6.0mm

Pliers for uninsulated cable shoe from 1.5-6.0mm (roll pressing)

Roadbox5 system overview



Important information

The regulations set by the truck manufacturer must always be followed.

One 3A fuse must always be mounted as close to the supply Connector as possible. See page 4, 9 or 10.

All cables must be mounted so that they can't be pinched. The cable isolation must not be damaged.

Connect5 was rebranded to Roadbox5 when Vehco was rebranded AddSecure in May 2020, hence AddSecure Roadbox5 is the same product as Vehco Connect5, and it should be installed in the same way.

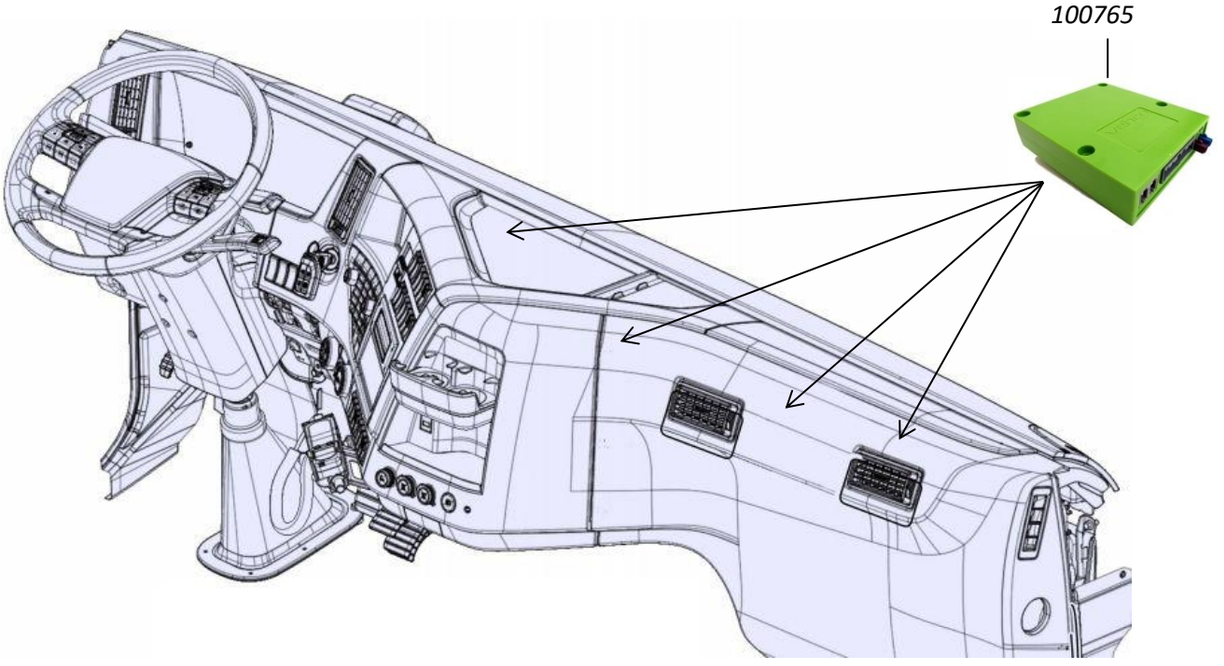
All cables coming out of the Roadbox5 box must be zip-tied to something nearby (max 20cm), this to minimize oscillation in the Connector.

All extension cables must be cut to length, do NOT wind up excessive cables in spools.

It is important that the Roadbox5 box is well fixed to avoid vibrations!

High reliability and trouble-free performance of the system is achieved only by high quality installation. Do not make any cable by-pass Connections.

Step 1 – *Mount Roadbox5*

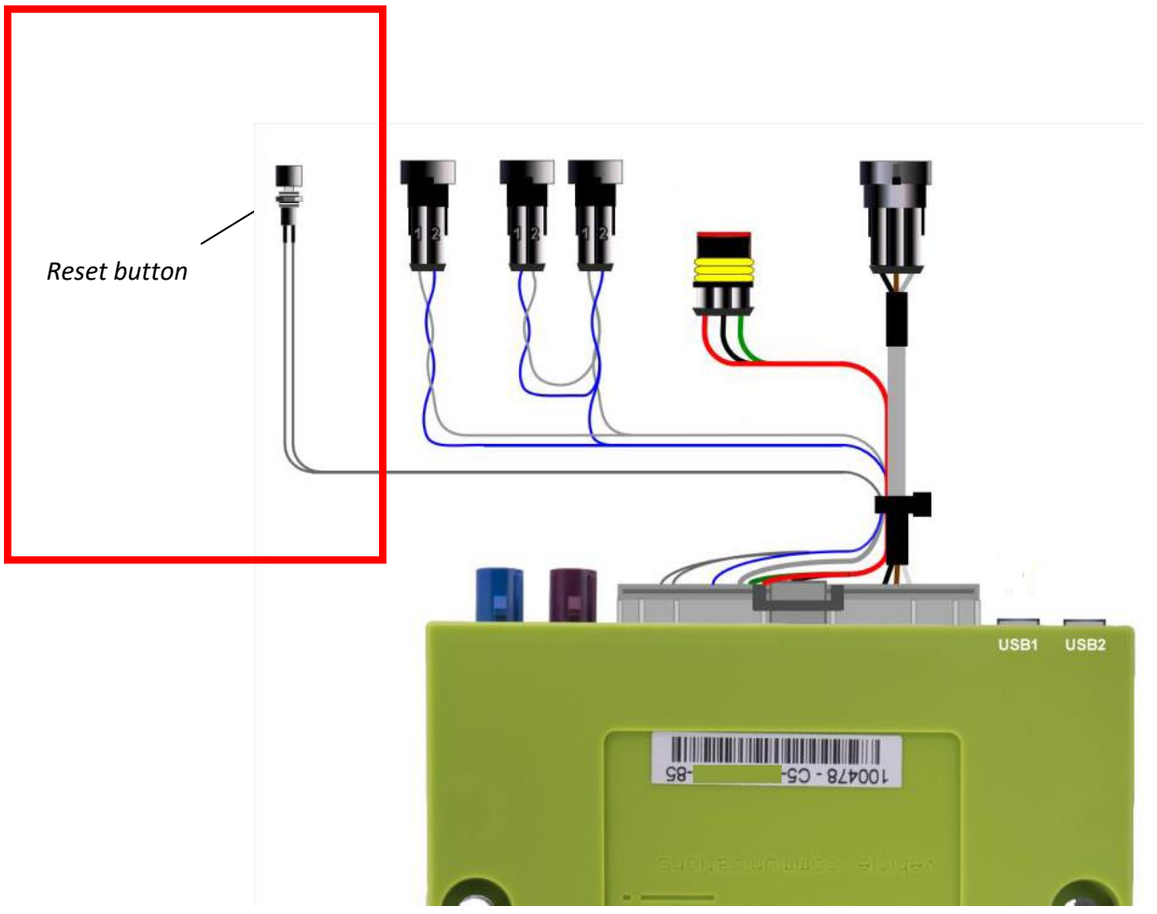


Write down the Roadbox5 box serial number that begins with "**C5-XXX**" (*can be found on the box*).

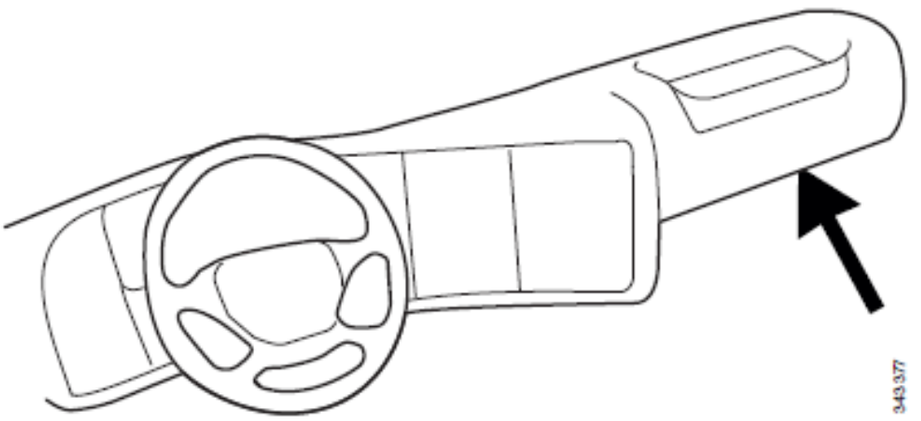
The "**Roadbox5 box *100765***" unit is typically mounted under the dashboard in the vehicle, near the fuse panel.

▲ It is important that the Roadbox5 box is well fixed to avoid vibrations!

Step 2 – *Reset button*

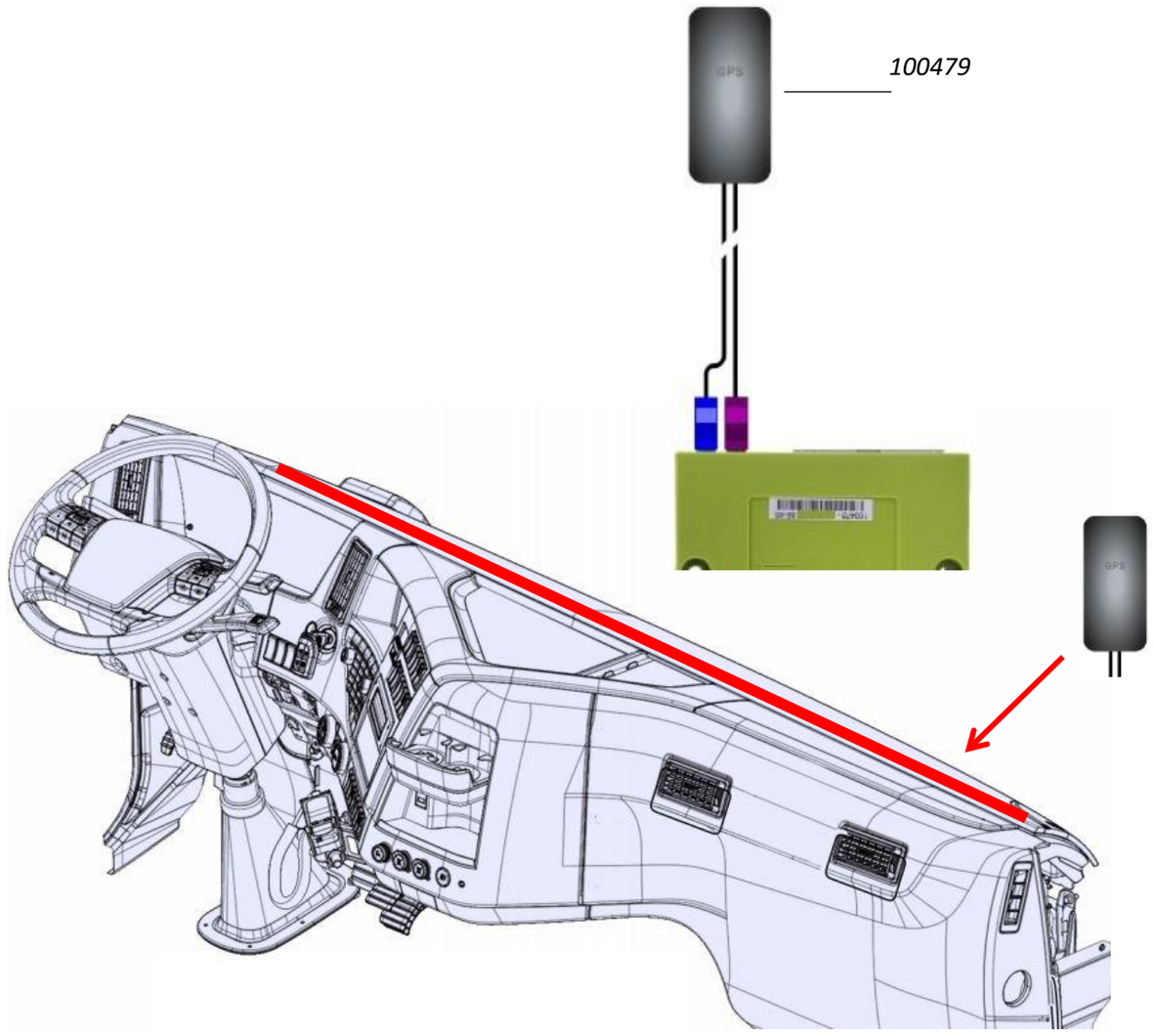


Put the "**Main Wire Harness *100482***" in the Roadbox5 box and mount the **reset button** from the main wire harness near or in the fuse panel.



▲ it needs to be accessible by the driver without the need of tools.

Step 3 – *GPS*

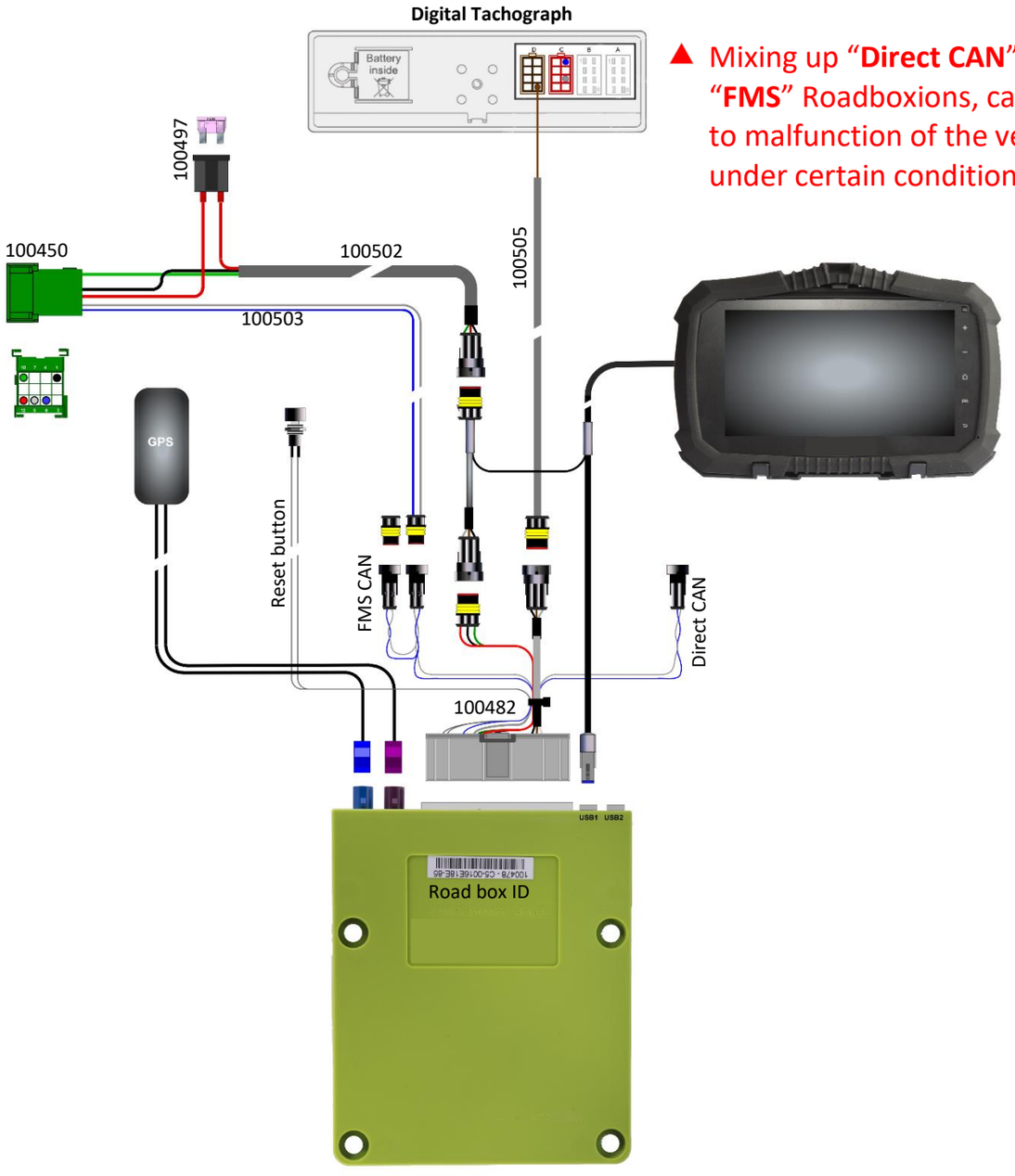


The internal "**GPS/GSM combi antenna *100479***" should be placed somewhere on top of the dashboard near the windshield (*with the text "GPS" facing the sky*).

The antenna cables should not be routed near the speakers or the **CB radio** (*Citizens Band Radio*) as well as the **CB radio** antenna wire.

If the truck is equipped with a **MAUT** antenna, the **GPS/GSM** combi antenna must not be placed closer than **30 cm** to the **MAUT** antenna

Step 4 – *FMS*



▲ Mixing up "**Direct CAN**" and "**FMS**" Roadboxions, can lead to malfunction of the vehicle under certain conditions.

F

the FMS Connector, transmission is **not** always activated. If no transmission, the truck must go to its brands workshop to activate the FMS function.

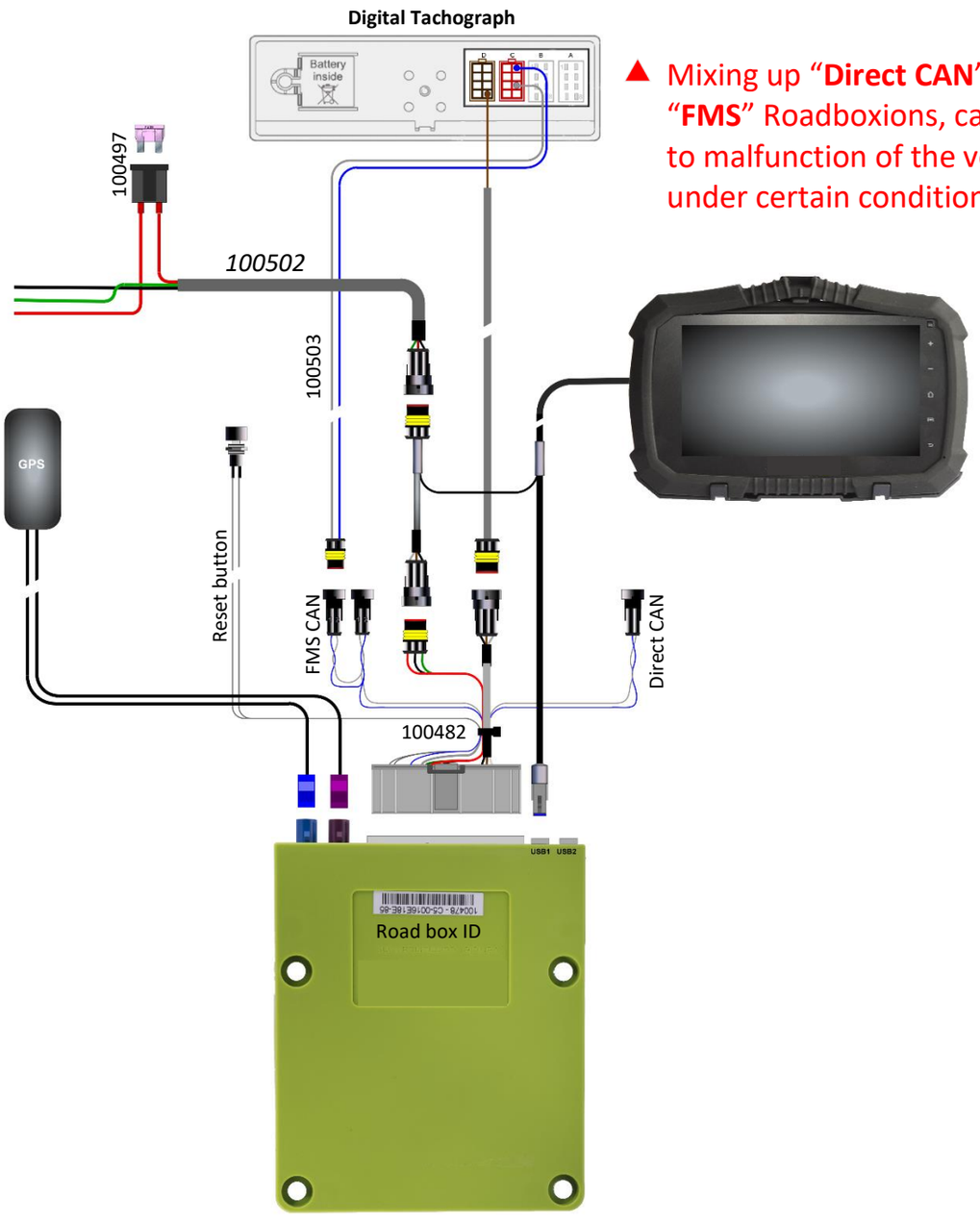
Read chapter *FMS* to see information about FMS Connector for a specific vehicle modell.

FMS

Mount the **"FMS CAN cable *100503*"** and "**Power cable *100502*"** in the included "**FMS Roadboxor *100450*"** and Roadbox that to the corresponding FMS Roadboxor in the vehicle.

Pin 1 **Black (ground)**	Pin 10 **Green (ignition)**
Pin 6 **Blue (CAN High)**	Pin 12 **Red (Battery)**
Pin 9 **Grey (CAN Low)**	

Step 4 – *Without FMS*



▲ Mixing up "**Direct CAN**" and "**FMS**" Roadboxions, can lead to malfunction of the vehicle under certain conditions.

First check if the truck have the FMS Connector or not. If the vehicle is equipped with the FMS Connector, transmission is **not** always activated. If no transmission, the truck must go to its brands workshop to activate the FMS function.

Read chapter *FMS* to see information about FMS Connector for a specific vehicle modell.

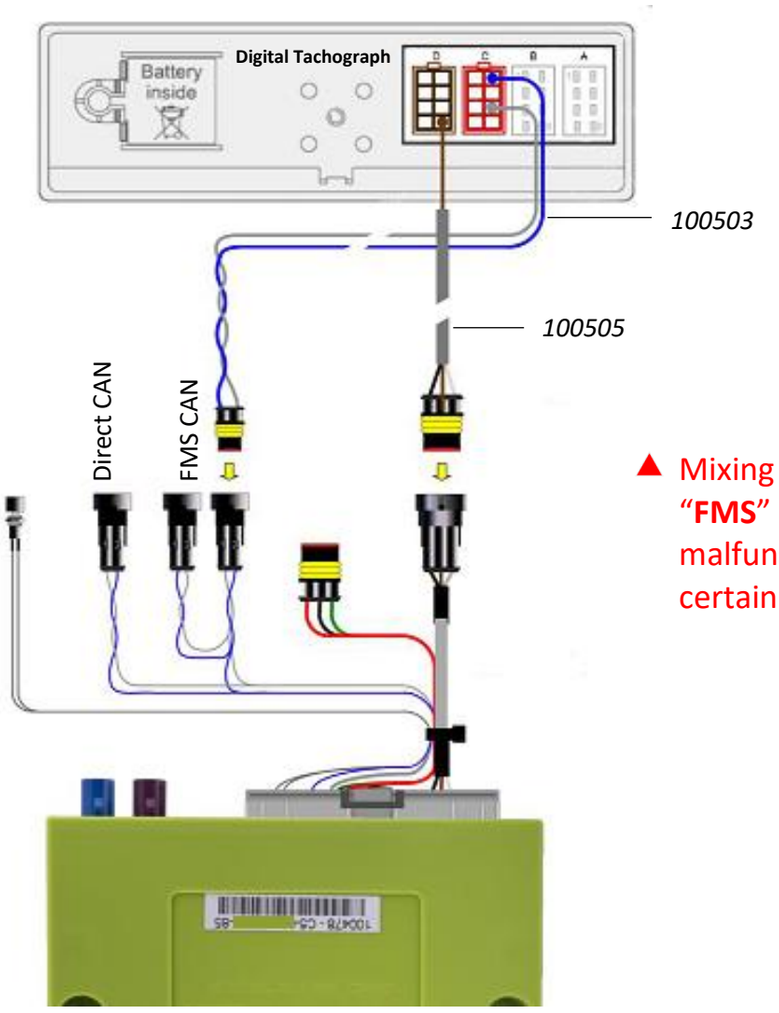
Without FMS

If the vehicle doesn't have the **FMS Roadboxor**, read **Step 5**-how to Roadbox **C5** & **C7** in the tachograph(**cable *100503***).

If the vehicle doesn't have the **FMS Roadboxor,** mount the power cable (**cable *100502***) in the fuse panel as below.

Red cable 12-24 v	**Green cable** ignition	**Black cable** ground

Step 5 – *Tachograph*



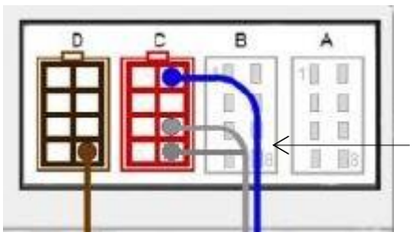
▲ Mixing up "**Direct CAN**" and "**FMS**" Roadboxions, can lead to malfunction of the vehicle under certain conditions.

Route the "**D8 cable *100505***" from the Roadbox5 box via the A-piller to the tachograph and Roadbox the brown cable in **Connector D** on pin **8.**

Mount a secondary "**CAN BUS cable *100503***"
(only if you don't get any **Tacho CAN** Roadboxion from the **FMS Roadboxor**, or when direct **CAN** option is used)

Blue wire Roadboxor **C** Pin **5** CAN High
Grey wire Roadboxor **C** Pin **7** CAN Low

- IF **C-CAN** on tachograph <u>is not</u> Roadboxed to the **FMS-gateway** <u>or</u> when using the direct **CAN** option:



Gray wire from *100503*

1. A termination loop in-between **C7** and **C8** should be in place. IF not, one needs to be made -this will terminate the tachograph with **120Ω.**
2. Combined resistance between **CAN** High and Low should be **60Ω** when everything is Roadboxed.

Step 5 – *Tachograph*

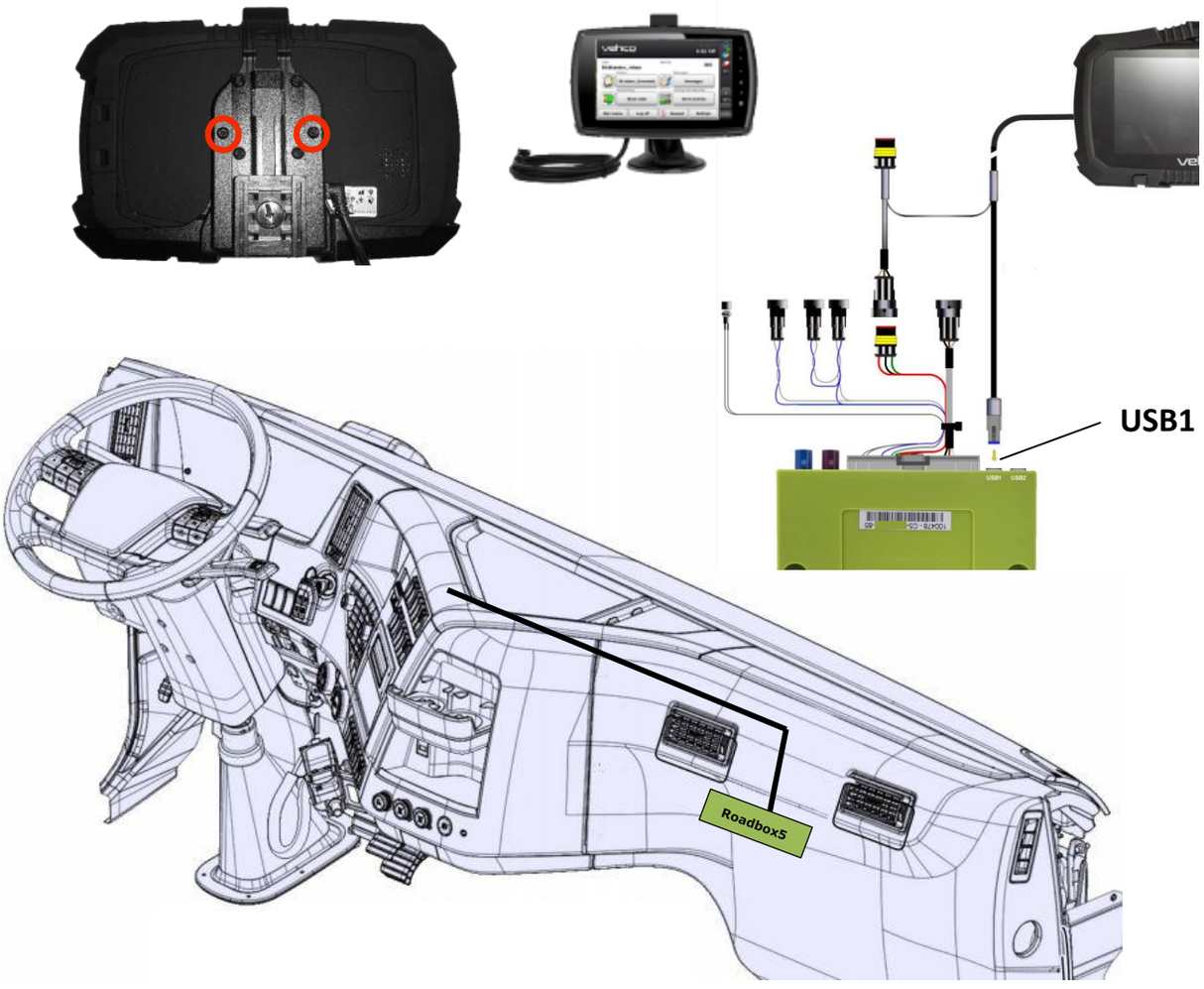
Always provide a tachograph Connection as described on previous pages.

Important: It is **REQUIRED** to establish both cable Connection between the Roadbox5 unit and the digital tachograph.

The CAN Connection alone is **NOT** sufficient to get full functionality.

Important: If the tachograph is sealed with a shield above the Connectors, it must be removed by an **authorised** tachograph technician.

Step 6 – *Android Screen*



The fixed Android screen is optional, an installation can take part without the screen. If an Android screen should be mounted, follow instructions below.

Mount the android screen where the customer has given their approval.

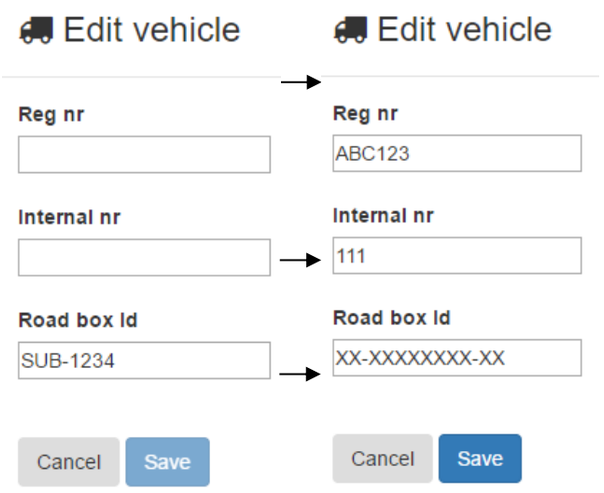
Fasten the screen using the two screws on the backside of the screen and Roadbox the monitor cables in **USB1** on the Roadbox5 box and the other part of the cable between incoming power and "**Main cable *100482***".

Screen cable are not allowed to be cut and must not be wound in a spool!

Step 7 – *System Configuration*

Installer WEB (STORK) – installation configuration

- ***On your computer/tablet/phone open:*** http://install.codriver.com
- ***Log in with your credentials***
- ***Enter the Company installer code***



Configuration

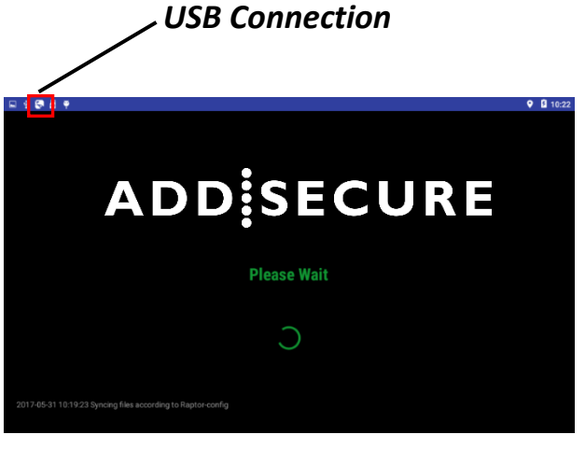
1. From the list, press ⚙ on the appropriate subscription/vehicle (if you don't know which subcription (SUB-xxxxx) that should be used, please contact the office).
2. Change **Road box Id (begins with C5-XXX)** to match the Roadbox5 box and if needed, add **Reg nr** and **Internal nr**.
3. Press "**Save**"

When the hardware is installed, **turn on the ignition** to do System Configuration.

Onboard Notifier

During the software download and installation process the screen will display the window shown below.

Note *that if this is not displayed it could be that* ***USB Connection*** *is missing, verify the connection and that you can see the two icons in the top left corner of the screen.*



Step 8 - *System test with screen*

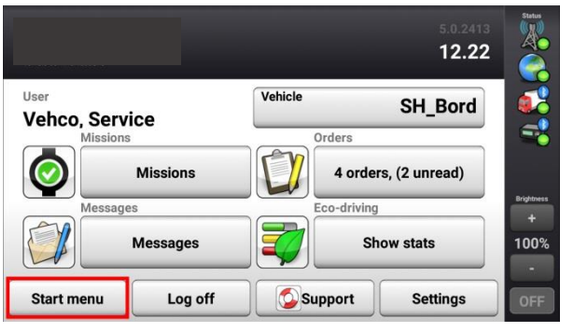
Before using the Roadbox5 system, a final diagnostic test shall be made.
By doing this, you've made sure everything is in order before leaving the vehicle.

With screen:

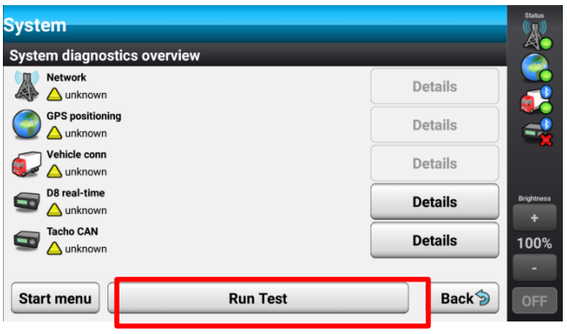
In the AddSecure application, sign in using the Service account

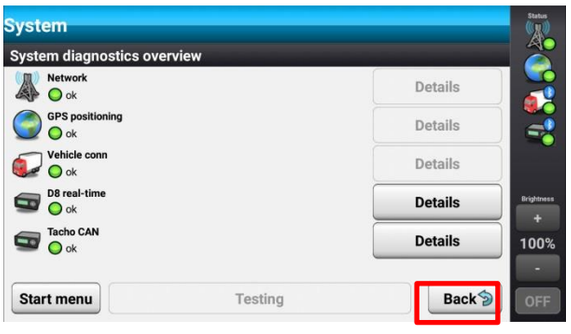
Username: 0000

Password: 13579



1. From the **Start menu**, with ignition **ON**, click the **Diagnostics** button (If you don't find the button on the first page when clicking Start menu, swipe left).





2. Start the test by clicking "**Run Test**". During the test, the "**Run Test**" will change to "**Testing**"

The test can take up to 5 minutes

Turn **off** the ignition and verify that the vehicle icon (on the right side of the screen) switches from green to a yellow triangle.

If test finishes with any errors, check installation and call your local AddSecure Support.

Step 8 - *System test without screen*

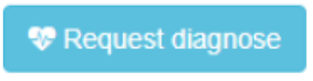
Before using the Roadbox5 system, a final diagnostic test shall be made.

By doing this, you've made sure everything is in order before leaving the vehicle.

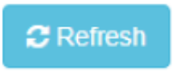
- ***From your phone/tablet/computer open:*** http://install.codriver.com
- ***Log in with your credentials***
- ***Enter the Company "installer code"***

Make sure that the ignition is on before doing the test.

1. From the list, press  on the appropriate subscription/vehicle.

2. Press the button 

to run diagnostic on the installation.

3. The diagnose may take up to a few minutes to complete, press 

to update.
Check the result to see if the installation is done properly.

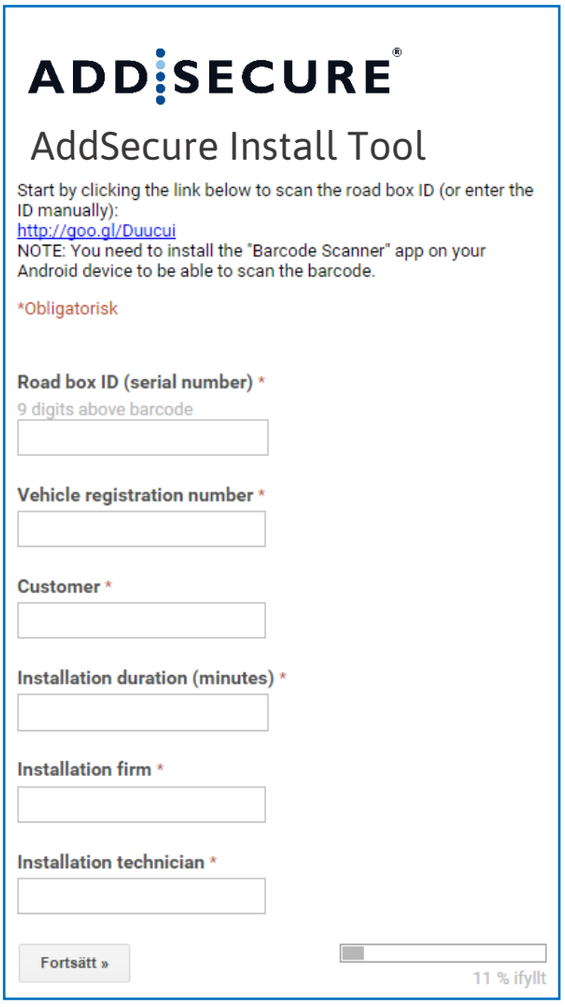
   The test can take up to 5 minutes

If test finishes with any errors, check installation and call your local AddSecure Support.

Step 9 - *Installation tool*

The installation form is used to send in the installation information.

- ***Visit on your phone/tablet/computer:*** http://install.codriver.com
- ***Log in with your credentials***
- ***Enter the Company "installer code"***



1. From the list, press  on the appropriate subscription/vehicle to enter the installation form.

2. Fill out the installation form and press "**send**" to submit.

Reference information

The following pages contains detailed information regarding the installation procedure.

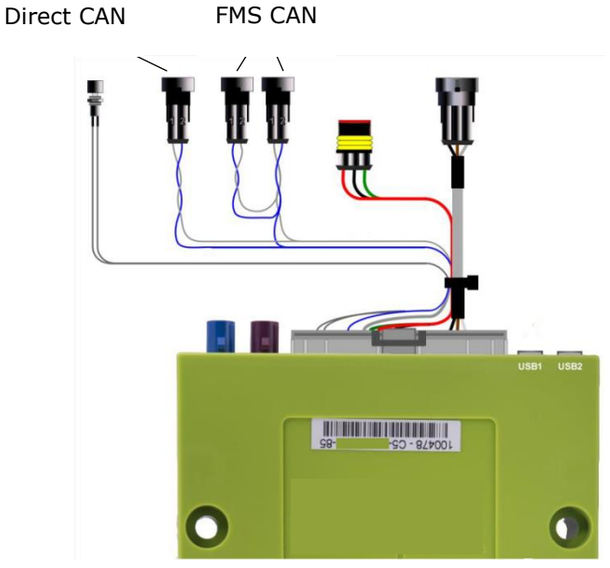
FMS

ATTENTION

FMS vs. Direct CAN

- The spider cable is equipped with **2** alternative Connections for vehicle data: **FMS** and **Direct CAN**.

  Direct CAN is only used in special cases and requires a special cable provided seperatly by AddSecure upon request.



NOTE! It is very important to use the Direct CAN cable only in conjunction with the direct CAN Connector of the Spider cable.

▲ Mixing up "**Direct CAN**" and "**FMS**" Connections, can lead to malfunction of the vehicle under certain conditions.

If the vehicle is **NOT** equipped with **FMS** (*illustrated on the upcoming pages*) please contact your local AddSecure Support, see contact info on the last page of this document.

Truck Information

- On the following pages, you'll find descriptions of body builder information and **FMS interface** options.
- Body builder information and FMS Connection options are based on data/information provided by the different truck manufacturers.

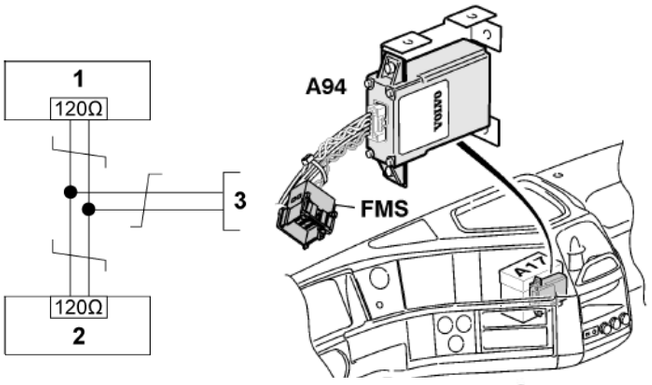
▲ **AddSecure takes no responsibility for the information/data provided by the truck manufacturers.**

FMS - Volvo FH/FM 2002 → 2013

Requirement

The FMS Gateway and the tachograph are each equipped with 120 Ohm terminating resistors.
In trucks with both FMS Gateway and Tachograph connected, the external FMS unit should not have termination resistors.
In trucks without tachograph, the external FMS unit should be equipped with a 120 Ohm termination resistor.
It is the responsibility of each installer to secure that the CAN link from the FMS Gateway and from the tachograph to the external FMS unit is terminated correctly.

For more details see the SAE J1939 standard.



Installation of external FMS (non VOLVO)

Connection to the standard FMS connector

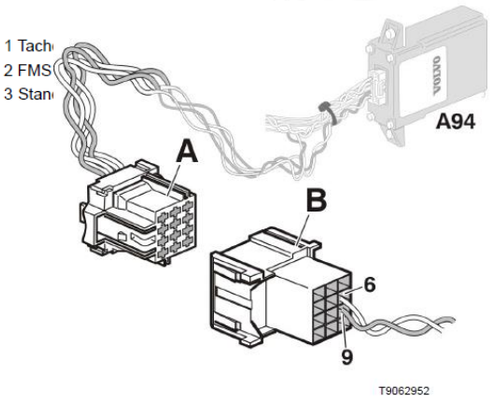
The wires from the FMS Gateway in the truck are connected to the connector marked A in the diagram shown here.
Volvo part number: 20367824.

Mating connector B shall be connected to the external FMS system.
Volvo part numbers:

- Connector housing: 3987480
- Receptacle terminal 0,5-1,0 mm²: 978295
- Receptacle terminal 1,1-2,5 mm²: 978296

Description of FMS Gateway connector

Pin	Description	Wire colour
1	Power ground (clamp 31)	White
6	CAN high	Yellow
9	CAN low	Green
10	Ignition (clamp 15)	Green/red
12	Power (clamp 30). Fused 10A	Red



FMS:6 = CAN-H (yellow wire)

FMS:9 = CAN-L (green wire)

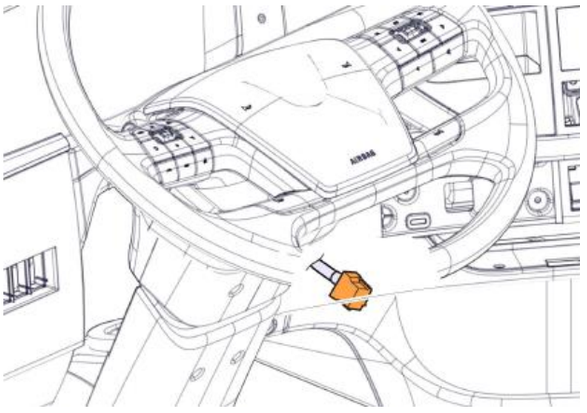
The wires should be twisted 40 turns per meter.

- In this **12-pin Connector**, the following signals can be tapped directly:

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
Reserved	2	Reserved	NC
12 V+	3	optional for 24V vehicles	NC
12 V ground	4	optional for 24V vehicles	NC
CAN high shield	5	Option	NC
CAN High	6	Always	**Blue**
Reserved	7	Reserved	NC
CAN ground or CAN low shield	8	Option	NC
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 15R (Ubat)	11	Option	NC
terminal 30 (24V) battery	12	Always	**Red**

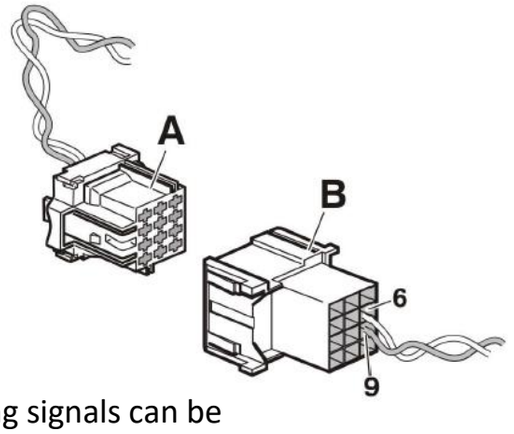
FMS - Volvo FH4 2013→

- **FMS Connector** is located inside the instrument panel and is labelled "**FMS.A**".



The cables from the FMS Gateway are mounted on:

A - FMS Gateway connector Part number 20367824
B - Connector from external transport information system
FMS:6 = CAN-H (yellow wire)
FMS:9 = CAN-L (green wire)
Twisted wires, 40 turns per meter.

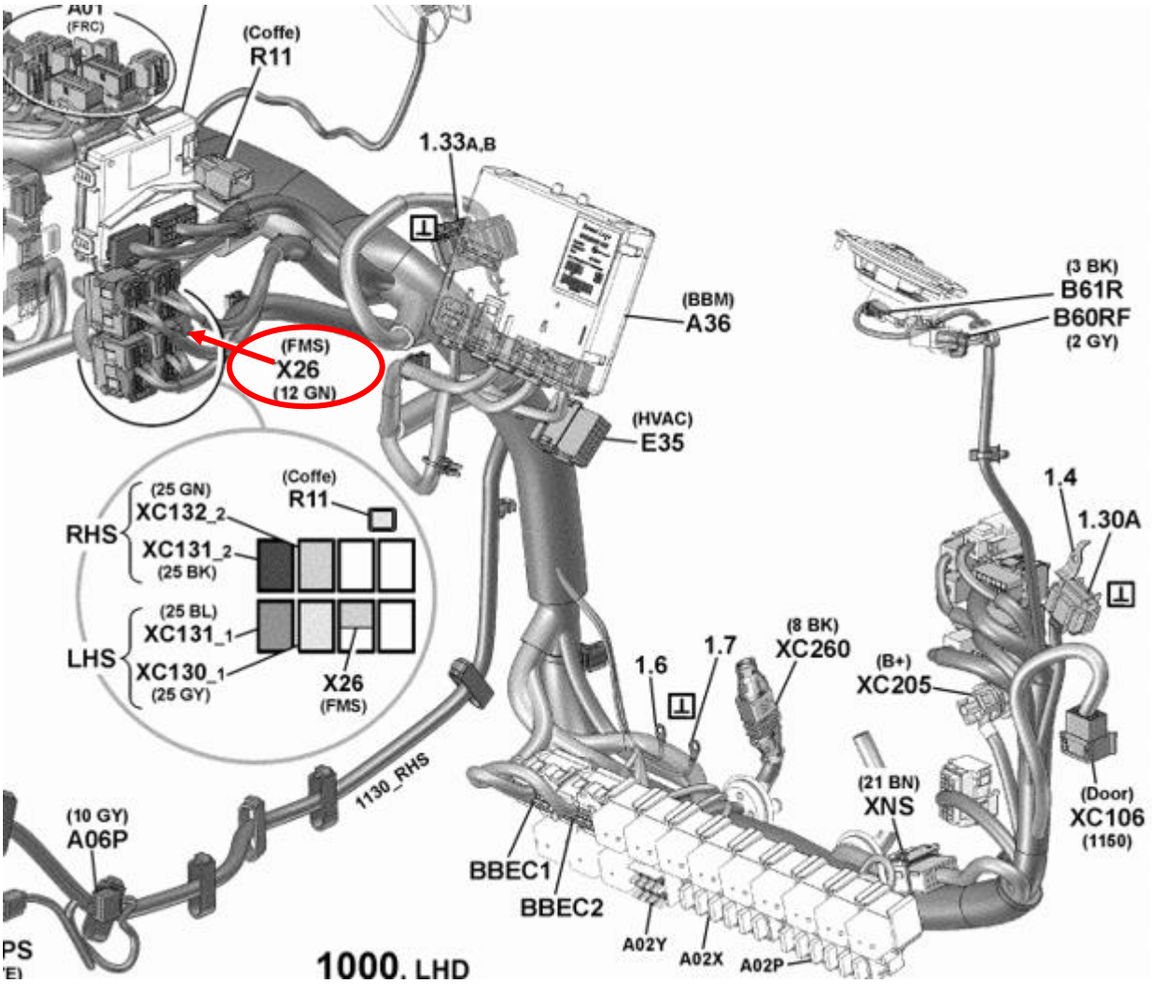


- In this **12-pin Connector,** the following signals can be tapped directly:

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
Reserved	2	Reserved	NC
12 V+	3	optional for 24V vehicles	NC
12 V ground	4	optional for 24V vehicles	NC
CAN high shield	5	Option	NC
CAN High	6	Always	**Blue**
Reserved	7	Reserved	NC
CAN ground or CAN low shield	8	Option	NC
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 15R (Ubat)	11	Option	NC
terminal 30 (24V) battery	12	Always	**Red**

FMS - Volvo FM4 2014→

- **FMS Connector** is located under the dashboard on the passenger side and is labeled ”**X26**”

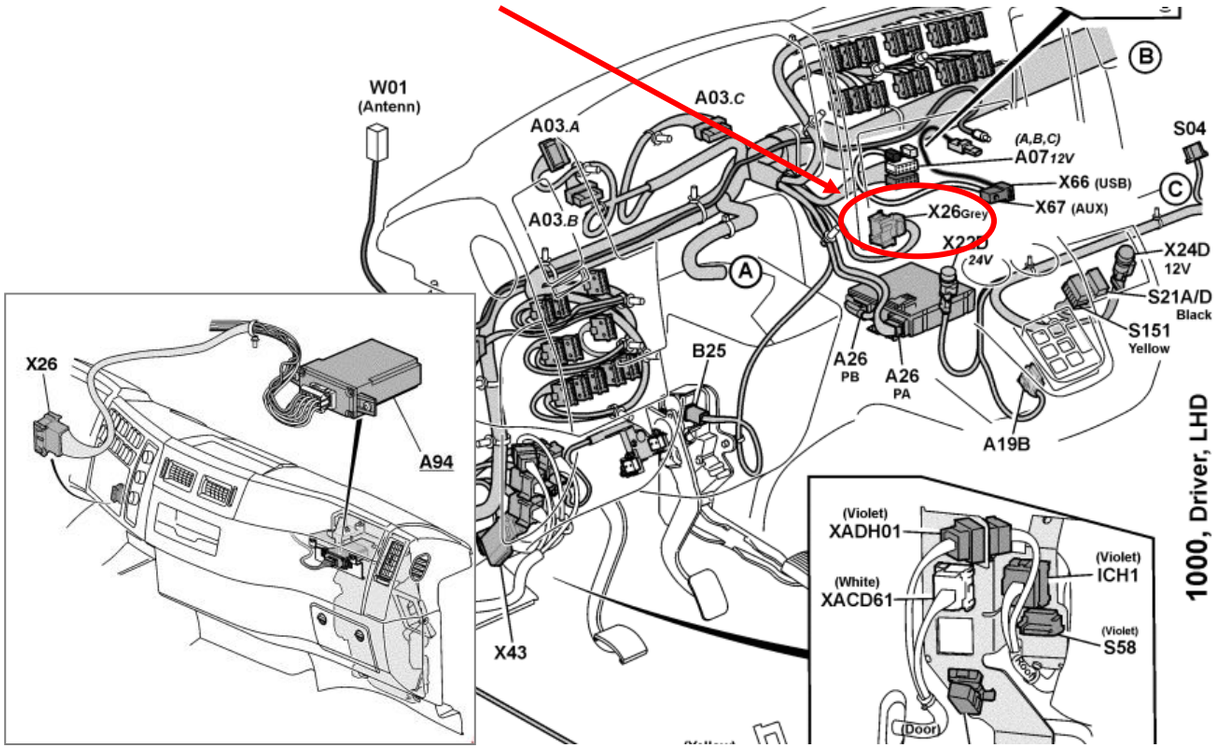


- In this **12-pin Connector**, the following signals can be tapped directly:

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

FMS - Volvo FE/FL →

FMS Connector is grey and is located inside the instrument Panel, behind the radio and is labelled "**X26**"



X26 – Grey Connector

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	A1	Always	**Black**
CAN High	A9	Always	**Blue**
CAN low	A8	Always	**Grey**
terminal 15 (Ubat) ignition	A16	Always	**Green**
terminal 30 (24V) battery	A2	Always	**Red**

- If the Connector is a **12-pin green Connector**, use these Connections instead:

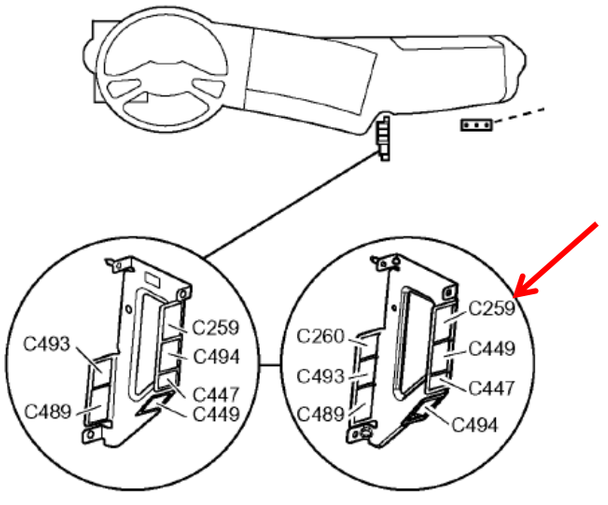
Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

FMS - Scania P-R-T Series → 2009-01-28

Manufactures in:	Chassis number:
	--> 2009-01-28
Södertälje	--> 2 046 174
Zwolle	--> 5 224 880
Angers	--> 9 141 334
São Bernado do Campo	--> 3 644 064

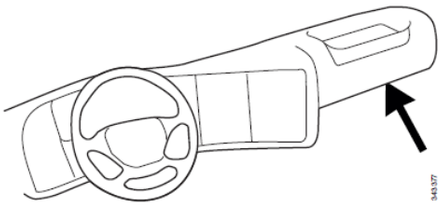
- The Scania **FMS CAN** interface module is situated on the passenger side. **CAN** is Roadboxed via **Connector C 259**.

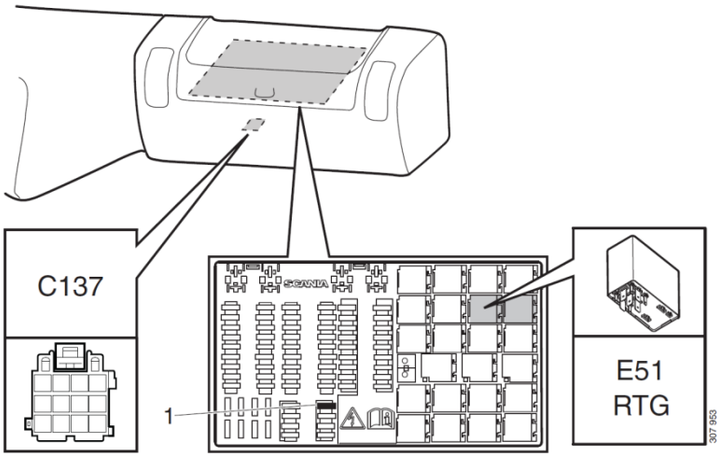
	Scania	Roadbox5	Connector C259
CAN-High	**Blue**	**Blue**	Pin 21
CAN-Low	**White**	**Grey**	Pin 20



FMS - Scania P-R-T Series (with RTG) 2009-01-29 → 2016

Manufactures in:	Chassis number:
	2009-01-29 -->
Södertälje	2 046 175 -->
Zwolle	5 224 881 -->
Angers	9 141 335 -->
São Bernado do Campo	3 644 065 -->





1. Fuse for **RTG**

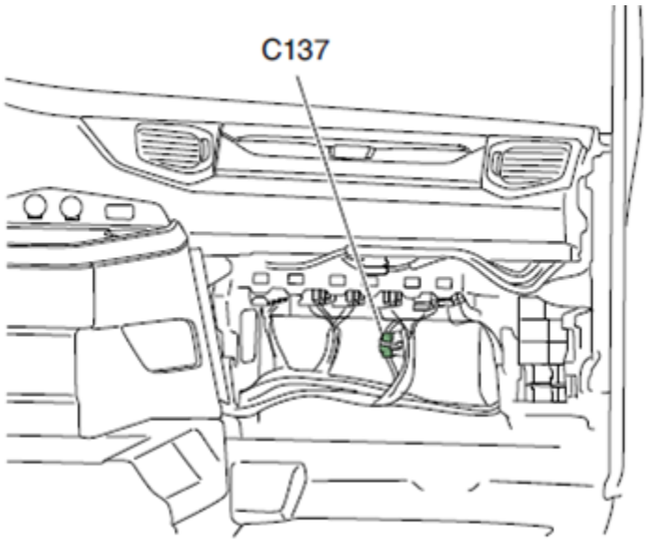
E51. Relay socket for **RTG-Connection**

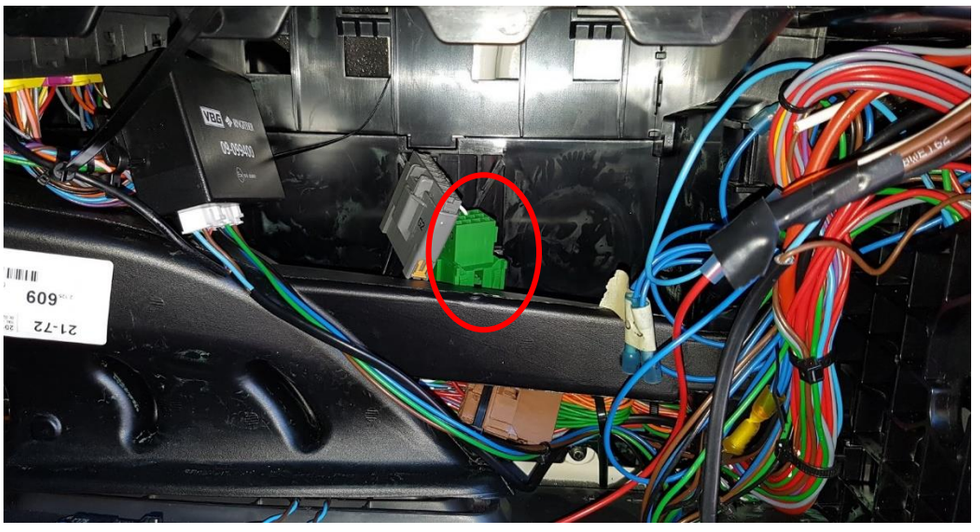
In this green **12-pin Connector C137**, the following signals can be tapped directly:

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
Reserved	2	Reserved	NC
12 V+	3	optional for 24V vehicles	NC
12 V ground	4	optional for 24V vehicles	NC
CAN high shield	5	Option	NC
CAN High	6	Always	**Blue**
Reserved	7	Reserved	NC
CAN ground or CAN low shield	8	Option	NC
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 15R (Ubat)	11	Option	NC
terminal 30 (24V) battery	12	Always	**Red**

NOTE! The earlier **Connectors C259** and **C471** don't exist in these trucks.

FMS - Scania New Generation 2017→





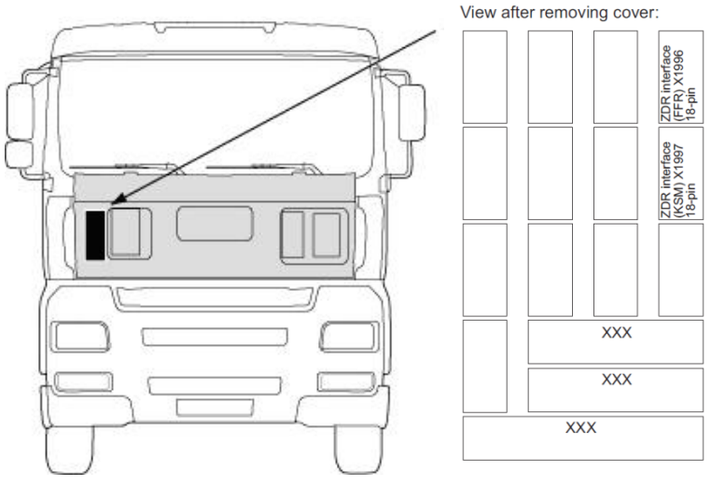
Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

FMS - MAN

On newer MAN truck, it's possible to find the 12-pin green Connector behind the tachograph, when Roadboxing here use the following pinout.

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

If the 12-pin green Connector is not found, use the Connection point below.



The **KSM** module can be retrofitted, available in **2** versions.

The Fleet Management Interface is only possible in Connection with the **KSM module** "**STEP05**" or earlier versions (*standard since March 2002*).

The complete interface includes an **18-pole Connector X1997** and two **6-pole Connectors X3311** and **X1428**, accessed from the outside by removing the protection cover.

CAN-BUS	Plug X1997, 18-pol	Roadbox5 CAN wire	MAN CAN wire
A-CAN-Low	Pin 18	Grey	Brown-Orange
A-CAN-High	Pin 17	Blue	Orange

NOTE! In the old **MAN TG** version, the Connector is called **X1996** (*not X1997*).

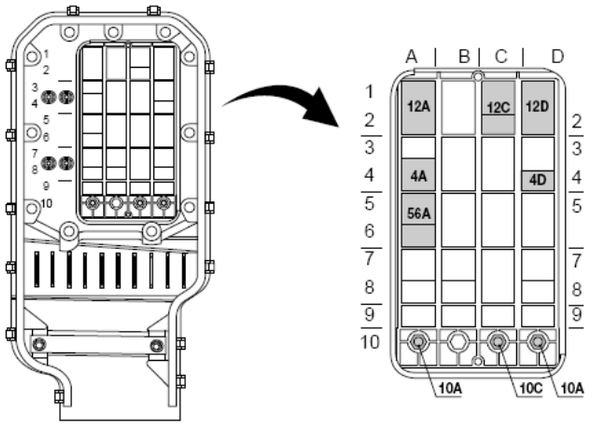
FMS - DAF CF and XF

On most **DAF** trucks, the **12-pin green FMS Connector** is found beside the fuse panel. Pin out below:

Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

If the vehicle doesn't have the **12-pin green Connector** beside the fuse panel, you will need to make the **FMS-Connection** from the outside of the truck.

Accessed from the outside by removing the protection cover.



CAN signal can be taken from the **twisted green and yellow wire** in Connector **12A**. In some cases, there may be a termination resistor, which **must** be removed when the **Roadbox5** is terminated.

12A	DAF wire	Roadbox5 wire
DCAN-High	Green 3783	Blue
DCAN-Low	Yellow 3782	Grey

FMS - Mercedes Actros 2 - Bluetec 4 and 5

IMPORTANT: FMS CAN-BUS installation for Mercedes Actros 2 with **Bluetec 4** and **Bluetec 5** must be mounted on **X1** on the **PSM module**, or from the Connector **Z3** on the **CAN distributor**. Valid from 01-10-2007.

To Roadbox the **CAN-BUS** to the **Roadbox5** base unit, mount the **Roadbox5 CAN-Bus cable** on the **Connector X1** on the **PSM module**.

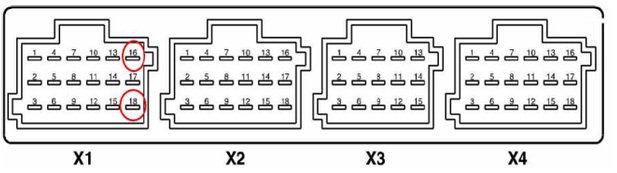
FMS CAN High X1 - pin 18

FMS CAN Low X1 - pin 16

PSM-Module

ACTROS 1 (950.### - 954.###)
ATEGO (970.### - 976.###, 374.4##, 950.5## - 954.6##, 958.0##)
AXOR (940.### - 944.###, 374.6##, 375.3##, 950.5## - 954.6##, 958.2##, 958.4##)
ECONIC (957.###):

X1-18/16: **FMS CAN-Low**
X1-18/18: **FMS CAN-High**



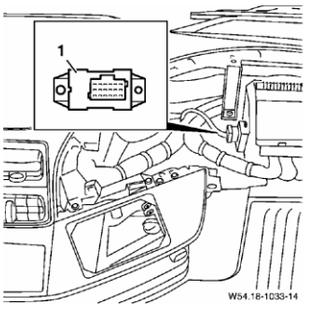
If there is no **PSM module** in the vehicle, **CAN data** can be obtained by mounting on **Connector Z3** on the **CAN distributor.**

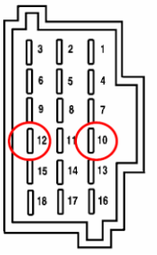
FMS CAN High X1 pin 10

FMS CAN Low X1 pin 12

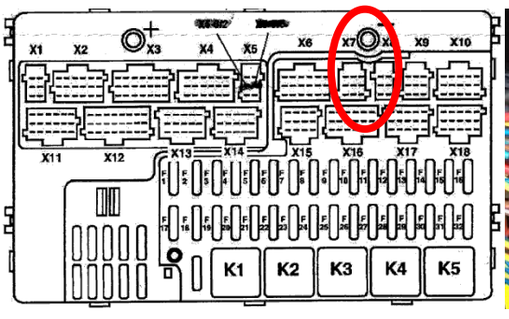
Connector X5 could also be used.

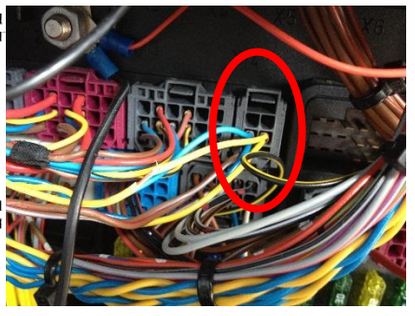
Sternpunkt / CAN Distributor Z3





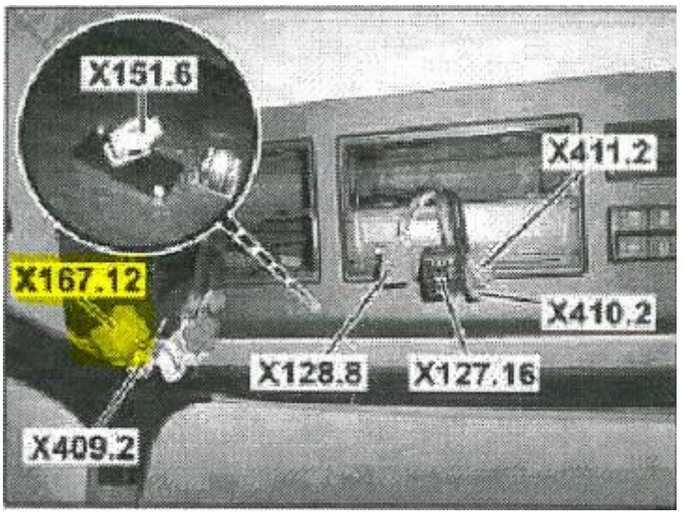
X1 18-10 **FMS CAN-High**
X1 18-12 **FMS CAN-Low**





FMS - Mercedes Actros MP4 chassis: WDB963

FMS Connector is located in the ceiling by the tachograph and is named **X167.12**.



In this Connector you will find **CAN_H**, **CAN_L**, Battery, Ignition and Ground.

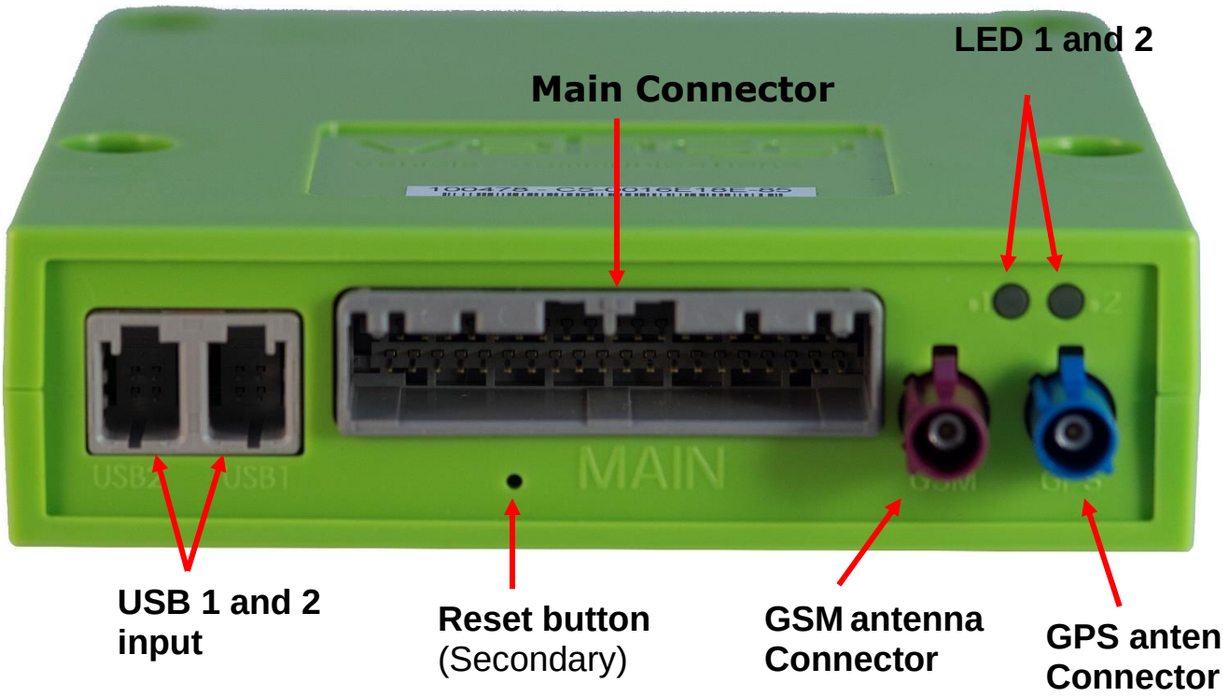
Signal	Pin	Remarks	Roadbox5
terminal 31 (24V power ground)	1	Always	**Black**
CAN High	6	Always	**Blue**
CAN low	9	Always	**Grey**
terminal 15 (Ubat) ignition	10	Always	**Green**
terminal 30 (24V) battery	12	Always	**Red**

The Roadbox5 system information

- The **Roadbox5** system consists of a base unit, a **GPS/GSM** combi antenna, cables and an add-on **Android based display** (optional).

- The **Roadbox5** base unit includes a computer with Linux operating system. AddSecure applications are installed in the unit as well as a **GPS** and a **GSM** module for positioning and data communication via **GPRS**.

- On the front of the base unit there is the Main Connector (**GPIO**), Automotive grade **USB, GPS** antenna Connector**, GSM** antenna Connector and two **LED's.**



Reset the Roadbox5

- There is a reset button mounted on the Main cable. Place the reset button with easy access for the driver**, preferably in the fuse panel**.

Normal reboot

Short press on reset button will make the **Roadbox5** to reboot the Linux system and do a normal startup.

Hard reboot

Press the reset button between **2** and **5** seconds will make the **Roadbox5** do a hard reboot where the power is cut before restarting. **LED** goes yellow when the hard reboot is initiated.

Factory reset

Pressing and holding the reset button for more than **30** seconds will make the **Roadbox5** do a factory reset. **LED**: s is indicating this according to information under "LED description" in this document.

When factory reset is performed the **Roadbox5** will reset to the version that was used when the unit was shipped. All user/vehicle data will be erased from the box.

LED description

	Color	Signal	Message
LED1 "HARDWARE"	**Green**	Constant	Self-test OK, network Roadboxed
		Blinking	Self-test OK, searching for network
	Yellow	Constant	Self-test in progress, network Roadboxed
		Blinking	Self-test in progress, searching for network
	Red	Constant	General HW Error
		Blinking	Not used
	Off	-	System starting
LED2 "SOFTWARE"	**Green**	Constant	Co-Driver up, logged in to server
		Blinking	Not used
	Yellow	Constant	Co-Driver up, not logged in to server
		Blinking	Factory reset initiated (release reset button)
	Red	Constant	General SW Error
		Blinking	Waiting for configuration from Installer Web (Stork) OR software update
	Off	-	System starting

Contact Information

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