





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 1.6.1

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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 Vehco Support)

URL: http://install.codriver.com

- Company installer code (ex.11U241B9) to "Installer WEB" (can be provided by Customer or Vehco Support)
- 3. **Subscription number** and/or **Vehicle identification** in the system to be installed (*can be provided by Customer*)



Tools to disassemble the dashboard



Pliers for insulated cable shoe from 1.5-6.0mm



Device: computer, tablet or phone with access to internet



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

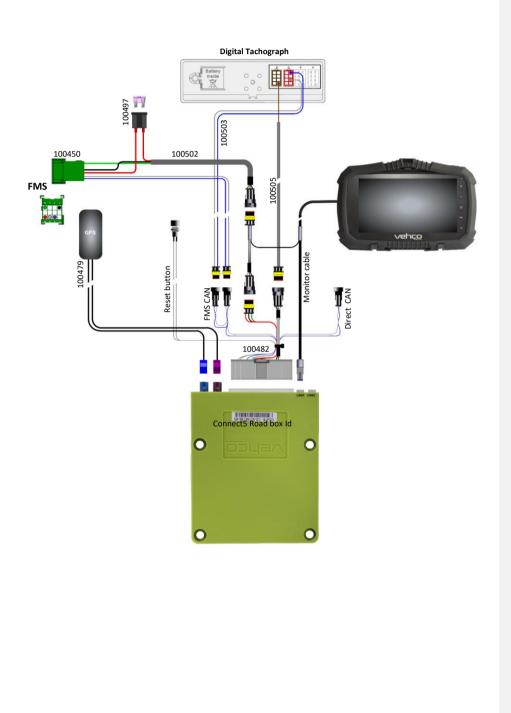
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Connect5 system overview



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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.

All cables coming out of the Connect5 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 Connect5 box is well fixed to avoid vibrations!

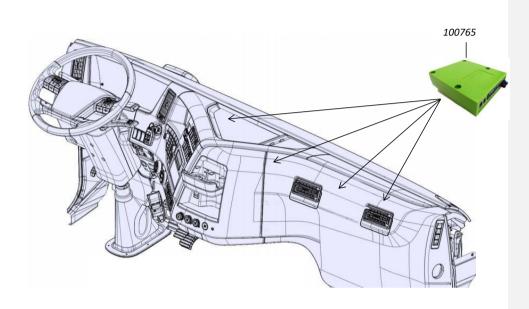
High reliability and trouble-free performance of the system is achieved only by high quality installation. Do not make any cable by-pass connections.



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Kommenterad [TA1]: Should this paragraph be removed? It is not found in the Swedish version of the manual.





Write down the Connect5 box serial number that begins with "**C5-XXX**" (*can be found on the box*).

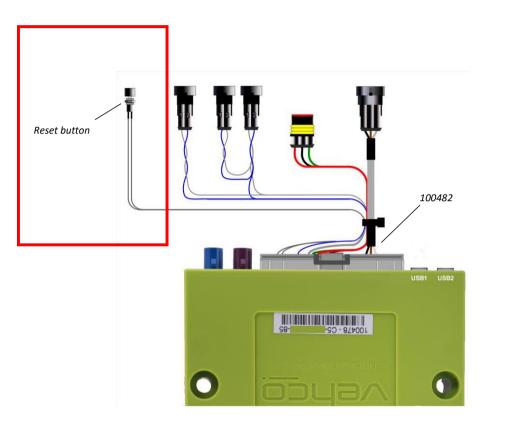
The **"Connect5 box 100765"** unit is typically mounted under the dashboard in the vehicle, near the fuse panel.

A It is important that the Connect5 box is well fixed to avoid vibrations!

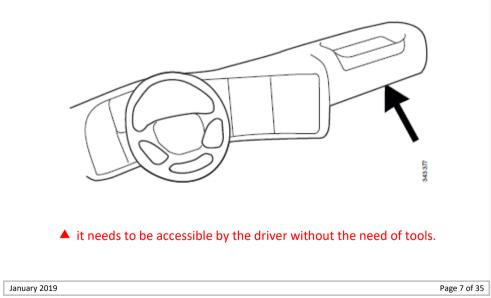
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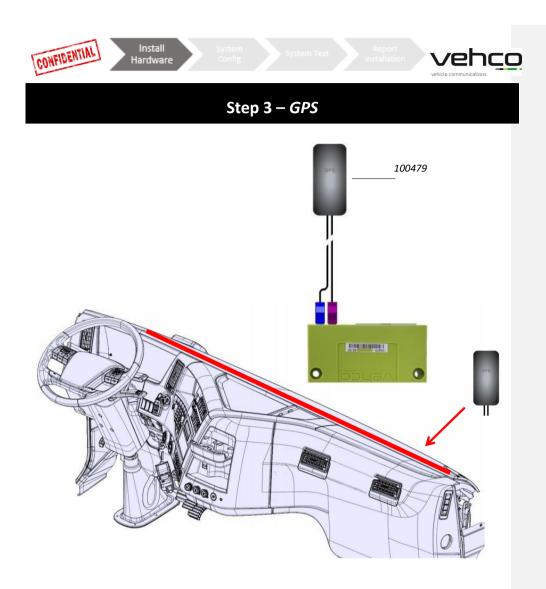
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Put the "Main Wire Harness 100482" in the Connect5 box and mount the reset button from the main wire harness near or in the fuse panel.

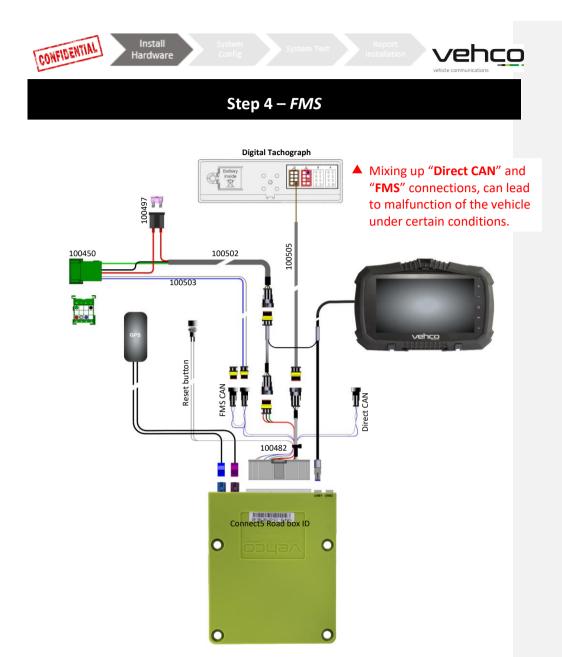




The internal "**GPS/GSM combi antenna 100479**" should be placed somewhere on top of the dashboard near the windshield (*with the text "GPS" facing the sky*).

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



First check if the truck has 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.

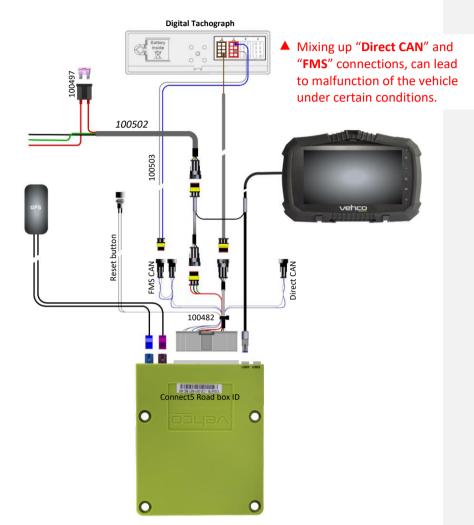
Read chapter <u>FMS</u> to see information about FMS connector for a specific vehicle modell.

FMS

Mount the **"FMS CAN cable 100503**" and **"Power cable 100502**" in the included **"FMS connector 100450"** and connect that to the corresponding FMS connector 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)	





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.

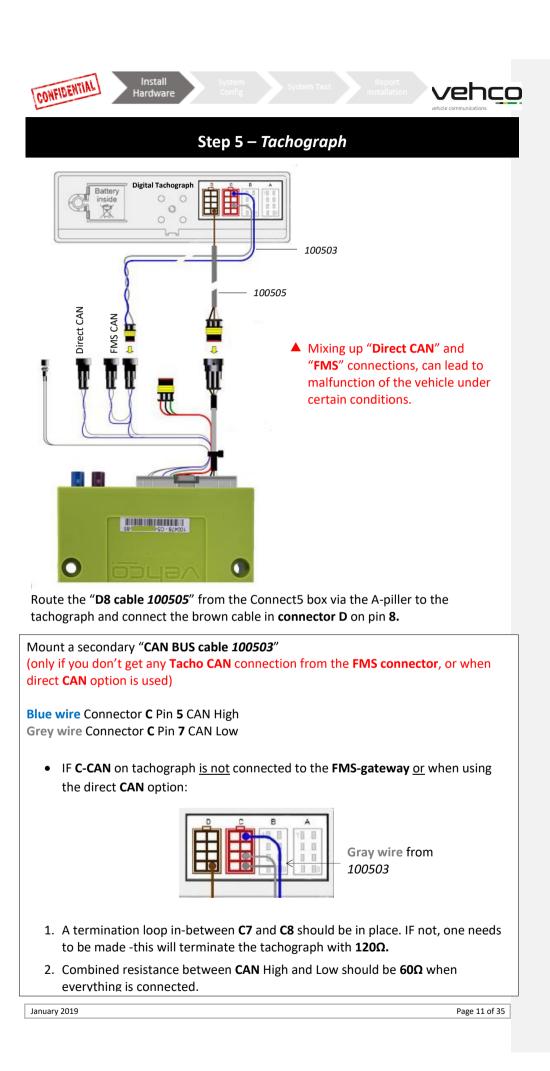
Read chapter <u>FMS</u> to see information about FMS connector for a specific vehicle modell.

Without FMS

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

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

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





Always provide a tachograph connection as described on previous pages.

Important: It is **<u>REQUIRED</u>** to establish both cable connection between the Connect5 unit and the digital tachograph.

The CAN connection alone is **<u>NOT</u>** sufficient to get full functionality.

Important: If the tachograph is sealed with a shield above the connectors, it must be removed by an **<u>authorised</u>** tachograph technician.

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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 connect the monitor cables in **USB1** on the Connect5 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!



ONFIDENTIAL Install System Hardware Config	System Test Rep Install	
Step 7 – Syste	m Configuration	
Installer WEB (STORK) – installatio	on configuration	
	🛲 Edit vehicle	🛲 Edit vehicle
On your computer/tablet/phone	Reg nr	Reg nr
open: http://install.codriver.com		ABC123
• Log in with your credentials	internal nr	internal nr
	-	→ 111
• Enter the Company installer code	Road box Id	Road box Id
	SUB-1234	XX-XXXXXXXX-XX
		•
	Cancel Save	Cancel Save

- 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 Connect5 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 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 Connect5 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 Vehco 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).

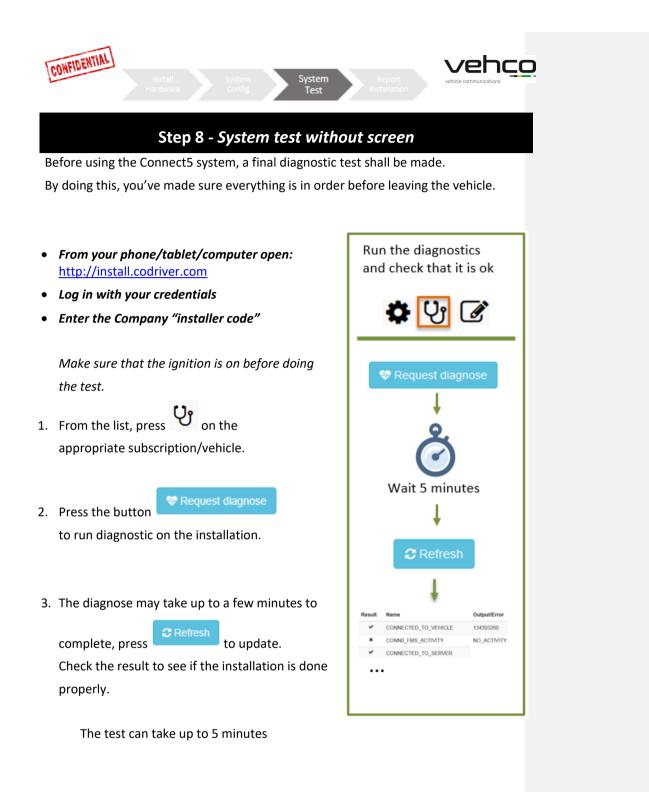
System			System		
System diagnostics overview			System diagnostics overview		
Network 🛆 unknown	Details		Network O ok	Details	
GPS positioning	Details		GPS positioning ok		
Vehicle conn	Details	^	Vehicle conn O ok	Details	
B real-time	Details	tripteres	BF real-time	Details	+
Tacho CAN	Details	+ 100%	CAN O ok	Details 10	00%
_		•			
Start menu Run Test	Back	OFF	Start menu Testing	Back)FF

 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 Vehco Support.



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

CONFIDENTIAL Install System Hardware Config System Test	Report Installation vehicle communications	כ
Step 9 - Installation	tool	
The installation form is used to send in the inst	tallation information.	

- Visit on your phone/tablet/computer: <u>http://install.codriver.com</u>
- 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.

•	-			
	\mathbf{v}	/ehco)	
	vehicl	e communications		

Vehco Install Tool

Start by clicking the link below to scan the road box ID (or enter the ID manually): http://goo.gl/Ducuel NOTE: You need to install the "Barcode Scanner" app on your Android device to be able to scan the barcode.

*Obligator	isk

Road box ID (serial number) *	
9 digits above barcode	
Vahiala nanistration number t	
Vehicle registration number *	
Customer *	
Customer *	
nstallation duration (minutes) *	
instanation duration (minutes)	
nstallation firm *	
nstallation technician *	
E to Vite	
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Reference information

The following pages contains detailed information regarding the installation procedure.

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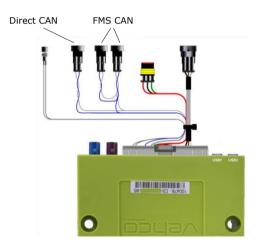
FMS

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 Vehco 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 <u>NOT</u> equipped with **FMS** (*illustrated on the upcoming pages*) please contact your local Vehco Support, see <u>contact info</u> 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.
- Vehco takes no responsibility for the information/data provided by the truck manufacturers.



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FMS - Volvo FH/FM 2002 → 2013

Requirement

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)

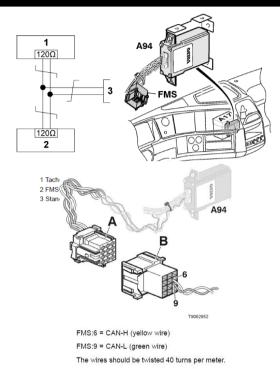
Connection to the standard FMS connector The wires from the FMS Gateway in the truck are connected to the connector marked A in the diagram shown here. Volvo part number: 20367824.

Mating connector B shall be connected to the externa 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 EMS Gate

Pin	in 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



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

Signal	<u>Pin</u>	Remarks	Connect5
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

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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:

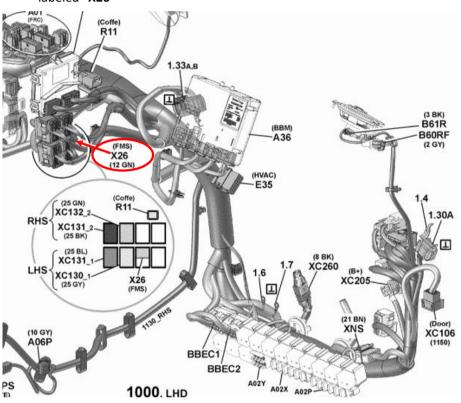
Signal	<u>Pin</u>	<u>Remarks</u>	Connect5
terminal 31 (24V power ground)	1	Always	Black
Reserved	2	Reserved	NC
12 V+	3	optional for 24V vehicles	NC
12 V ground	4	optional for 24V vehicles	NC
CAN high shield	5	Option	NC
CAN High	6	Always	Blue
Reserved	7	Reserved	NC
CAN ground or CAN low shield	8	Option	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





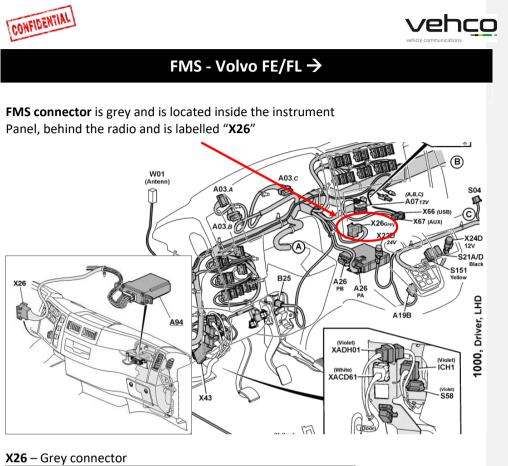
FMS - Volvo FM4 2014→

• 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	Connect5
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



Signal	<u>Pin</u>	<u>Remarks</u>	Connect5
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	<u>Pin</u>	Remarks	Connect5
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

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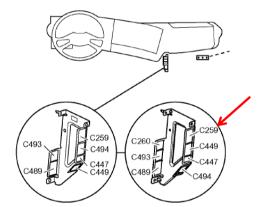
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FMS - Scania P-R-T Series -> 2009-01-28

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 connected via connector C 259.

	Scania	Connect5	Connector C259
CAN-High	Blue	Blue	Pin 21
CAN-Low	White	Grey	Pin 20



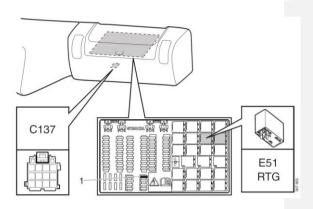
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FMS - Scania P-R-T Series (with RTG) 2009-01-29 → 2016

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>



Fuse for RTG
 E51. Relay socket for RTG-connection

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

Signal	<u>Pin</u>	<u>Remarks</u>	Connect5
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

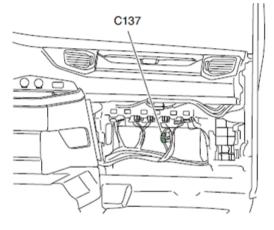
NOTE! The earlier connectors C259 and C471 don't exist in these trucks.

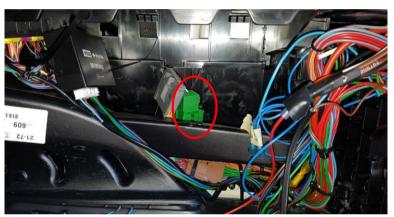


vehco

FMS - Scania New Generation 2017→

 In the New Generation of Scania trucks, the 12-pin FMS-Connector (C137) is located on the passenger side, behind the main fuse panel.





Signal	<u>Pin</u>	<u>Remarks</u>	Connect5
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

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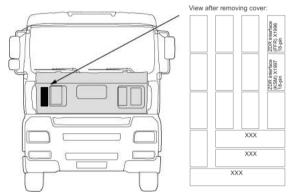


FMS - MAN

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

Signal	Pin	Remarks	Connect5
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 (24)/) 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	Connect5 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).





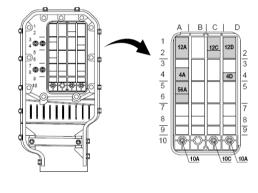
FMS - DAF CF and XF

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

Signal	Pin	Remarks	Connect5
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 <u>must</u> be removed when the **Connect5** is terminated.

12A	DAF wire	Connect5 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 connect the **CAN-BUS** to the 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,###): **Connect5** base unit, mount the Connect5 CAN-Bus cable on the connector X1 on the PSM X1-18/16: FMS CAN-Low X1-18/18: FMS CAN-High module. FMS CAN High X1 - pin 18 4444 ے 4 ڈ ڈ ڈ ٹ ڈ ڈ 4 ڈ ڈ ڈ ڈ <u>گ لگ لگ گ گ</u> 2 5 8 U H U FMS CAN Low X1 - pin 16 2 4 4 4 4 <u>م م م م م م م</u> X1 X2 X3 X4 If there is no **PSM module** in the St nkt / CAN Distributor Z3 vehicle, CAN data can be obtained by mounting on 50 б connector Z3 on the CAN distributor. FMS CAN High X1 pin 10 FMS CAN Low X1 pin 12 Connector X5 could also be used. X1 18-10 FMS CAN-High X1 18-12 FMS CAN-Low MI ╪╢┊╢┊╟╡╠╪╠╪╢╧╢╧╢╧╢╧╢╧╢╧╢╧╢ 0000 О (К1 К2 кз K4 K5

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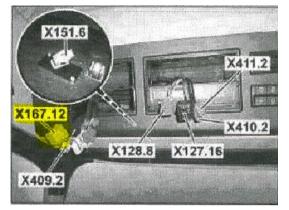
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FMS - Mercedes Actros MP4 chassis: WDB963

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.

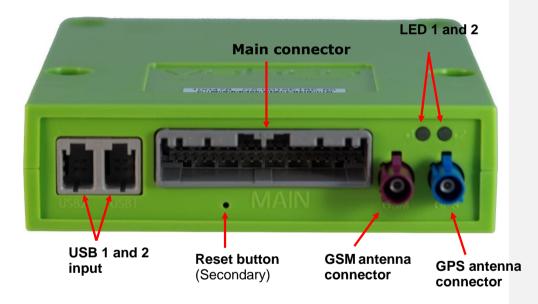
Signal	<u>Pin</u>	<u>Remarks</u>	Connect5
terminal 31 (24V power ground)	1	Always	Black
CAN High	6	Always	Blue
CAN low	9	Always	Grey
terminal 15 (Ubat) ignition	10	Always	Green
terminal 30 (24V) battery	12	Always	Red





The Connect5 system information

- The **Connect5** system consists of a base unit, a **GPS/GSM** combi antenna, cables and an add-on **Android based display** (optional).
- The **Connect5** base unit includes a computer with Linux operating system. Vehco 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 Connect5

• 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 **Connect5** to reboot the Linux system and do a normal startup.

Hard reboot

Press the reset button between **2** and **5** seconds will make the **Connect5** 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 **Connect5** do a factory reset. **LED**: s is indicating this according to information under "<u>LED description</u>" in this document.

When factory reset is performed the **Connect5** 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 connected
		Blinking	Self-test OK, searching for network
	Yellow	Constant	Self-test in progress, network connected
		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

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Contact Information

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