



## EW OBU 850

### Telematic unit installation manual for technicians

DAF  
IVECO  
MAN  
MERCEDES-BENZ  
RENAULT TRUCKS  
SCANIA  
VOLVO TRUCKS

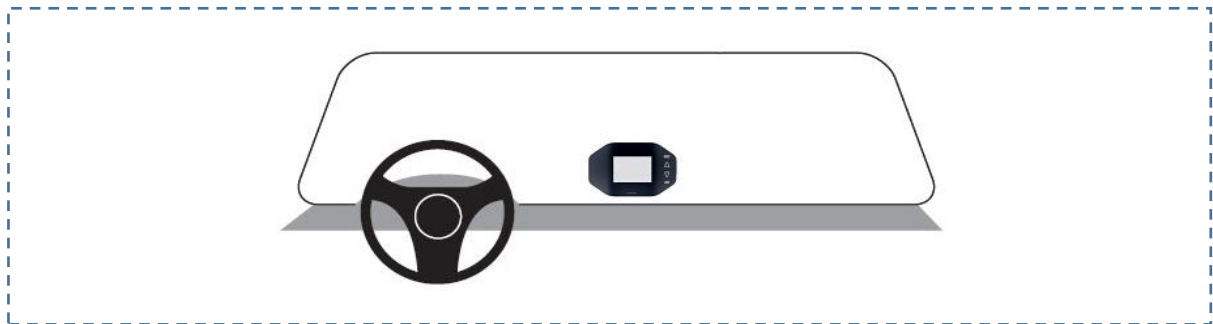
## The contents of the installation manual for technicians

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## 1. EW OBU installation in the vehicle

The EW OBU shall be installed inside in the middle of the lower part of the windshield, the wipers in resting position or any other object must not obstruct the EW OBU and EW OBU must not obstruct the driver's view in any direction. The EW OBU can't be used in vehicles with metalized windshield, only on places where the windshield is not metalized.

Before mounting the EW OBU, clean the installation area. Remove the protective foil from the EW OBU screen and from the stripes. Stick the EW OBU on the cleaned area of the windshield. The buttons shall be on the right-hand side.



## 2. EW OBU connection to the vehicle

The EW OBU can be connected in two ways:

- A. **Basic connection – EVA START**  
To 24/12V socket / cigarette lighter
- B. **Fixed installation - reading of all vehicle operating values – EVA PLUS/ULTRA**  
Professional installation - FMS vehicle connection + tachograph

### A. BASIC CONNECTION



EW OBU connected only via the power cable into the 24/12V cigarette lighter socket or fixed installation to power supply the vehicle

In this connection mode, the vehicle operating values are not read from the vehicle FMS!

## B. FIXED INSTALLATION – READING OF ALL VEHICLE OPERATING VARIABLES

In this connection mode the EW OBU is connected to the vehicle's electrical installation. We use the supplied cables including the necessary connectors.

We connect the EW OBU cable harness to the FMS extension connector in vehicle and the tachograph.

The standardized FMS extension connector should be fitted to all Euro 6 trucks.

**Note:** In case the FMS extension connector is not in the vehicle, it must be ordered from the truck manufacturer.

Another condition is that in the FMS extension connector must be enabled for communication (active CAN BUS). In case it is not it necessary to have it activated by the vehicle manufacturer.

If communication in the FMS extension connector is not enabled the EW OBU will not read the operating information from the vehicle!



*Basic schema of connection to the extension connector without a tachograph connection:*

**Note:** for all connection types, the cable on the side of EW OBU must be screwed on by hand

### 3. List of required components and tools for FULL GPS installation

| SUPPLIED MATERIAL   |   | TOOLS AND SUPPLIES   |   |
|---|---|--|---|
|    | EW OBU cable harness<br>3,5m.<br><br><i>PRINCIP EW OBU CABLE 3.5</i>    |    | Insulating tape.  |
|    | Pin to FMS connector.<br><br><i>TE Connectivity 1-963746-1</i>          |    | Tightening tapes.   |
|    | Connector latch (12 pin).<br><br><i>TE Connectivity 967632-1</i>        |    | Key for tachograph disassembly.   |
|   | FMS connector 12 pin.<br><br><i>TE Connectivity 1-967627-1</i>          |   | Dismantling contacts.   |
|  | Connector latch (18 pin)<br><br><i>TE Connectivity 967634-1</i>         |  | Crimping tool.  |
|  | FMS DAF connector 18 pin.<br><br><i>TE Connectivity 1-967629-1</i>      |  | TOOL SET  |
|  | Cable to the tachograph 4m.<br><br><i>PRINCIP TACHO CABLE 4</i>         |  | <b>Screwdrivers:</b><br>flat- small, large<br>crosses- small, big<br>torx- 20, 25, 30 |
|  | Pin to the tachograph connector.<br><br><i>TE Connectivity 925596-2</i> |  | <b>Metric Key:</b><br>M8, M10, M13, M15   |
|  | Connector „C“ to the tachograph.<br><br><i>TE Connectivity 927367-1</i> |  | <b>Pliers:</b><br>Drill pliers<br>Stripping pliers.                                   |
|  | Connector „D“ to the tachograph.<br><br><i>TE Connectivity 927368-1</i> |  | <b>Other:</b><br>breaking knife<br>...  |

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#### 4. Overview of signals on the EW OBU cable harness

| WIRE COLOR   | DESCRIPTION                 |
|--------------|-----------------------------|
| RED          | Signal PWR_IN – „KL30“      |
| VIOLET       | Signal UAR, infoline D8     |
| BLACK        | Signal GND „KL31“           |
| ORANGE       | Signal CAN0_H               |
| WHITE/ORANGE | Signal CAN0_L               |
| BLUE         | Signal CAN1_H to tachograph |
| WHITE/BLUE   | Signal CAN1_L to tachograph |

After installation, the cable from the EW OBU to the FMS extension connector in the vehicle, it is necessary to insert the pins into the attached FMS connector see the individual connection option, see point 5.



*EW OBU cable harness 3,5m*

## 5. Possible variants of the required cabling according to the type of connection

| EVA START  |   |
|--|---|
| Location of connection points:   | Material:   |
| <b>Option 1</b>  |   |
| Plugging into a cigarette lighter only or fixed installation to power supply the vehicle | Cable 2m Micro USB 3.0 to cigarette lighter connector |
|  | EW OBU cable harness 3,5m                             |

| EVA PLUS/ULTRA CONNECTION FMS AND TACHOGRAPH                     |                                 |
|--|---------------------------------|
| Location of connection points:                                   | Material:                       |
| <b>Option 2</b>  |                                 |
| FMS extension connector at the fuse box or behind the tachograph | EW OBU cable harness 3,5m       |
|  | Connector FMS 12pin             |
|  | Cable harness to the tachograph |
|  | Connector "C"                   |
|  | Connector "D"                   |
|  | pins to connectors 4x           |

| EVA PLUS/ULTRA CONNECTION FMS AND TACHOGRAPH ONLY FOR TRUCK OF DAF EURO 6 |                           |
|---|---------------------------|
| Location of connection points:  | Material:                 |
| <b>Option 3</b>   |                           |
| FMS extension connector at the fuse box                                   | EW OBU cable harness 3,5m |
|   | Connector FMS DAF 18pin   |

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## OPTION 1 - EVA START

Plugging into a cigarette lighter only

Basic connection:



Or fixed installation to power supply of the truck.

Only the power supply of the unit is connected, connection is possible via FMS extension connector or in fuse box see below chapter 9. Connection points on specific trucks with no extension FMS connector **but in this case it is always necessary to use a fuse 2A!**

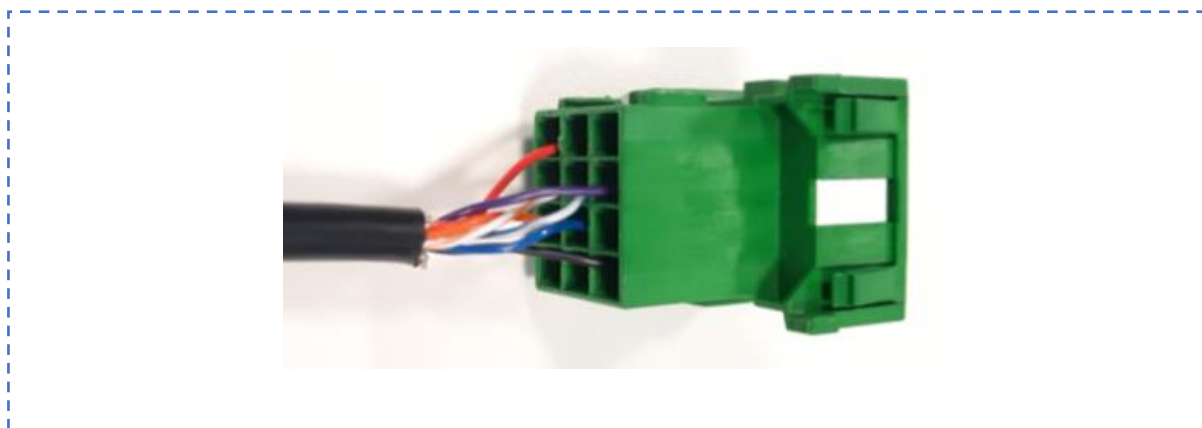
**All unconnected wires must be isolated by tape!**



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## OPTION 2 EVA PLUS/ULTRA - CONNECTION FMS AND TACHOGRAPH

Required material:



*EW OBU cable harness 3,5m + connector FMS 12pin*

+

*Cable harness to the tachograph + Connectors „C“, „D“ and 4x pins*

Connecting the wires to the FMS connector:

| POSITION FMS | POSITION NAME     | UNIT CABLE FROM EW OBU | COLORS OF EACH WIRES |
|--------------|-------------------|------------------------|----------------------|
| 1            | 31 GND (-)        | GND                    | BLACK                |
| 5            | CAN1_High         | CAN1_High              | BLUE                 |
| 8            | CAN1_Low          | CAN1_Low               | WHITE/BLUE           |
| 6            | CAN0_High         | CAN0_High              | ORANGE               |
| 9            | CAN0_Low          | CAN0_Low               | WHITE/ORANGE         |
| 7            | Tacho infoline D8 | UAR                    | VIOLET               |
| 12           | 30 PWR (+)        | PWR_IN                 | RED                  |

*Manufacturer and type of connector: TE CONNECTIVITY*

*Connector: FLA-STE-GEH2,8 12P*

*Pin: TAB 2.8x0.8 CONTACT CF SRC*

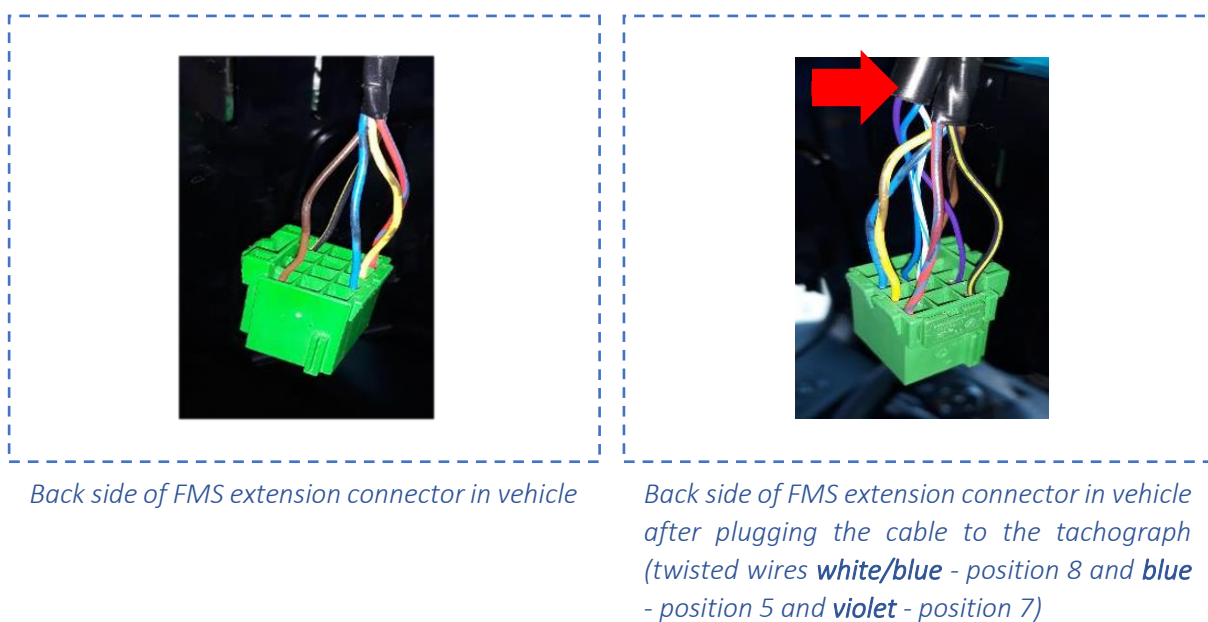
**Note:** For trucks where there is only CAN tachograph on the extension FMS connector (most often Scania), it is necessary to change the positions of the twisted wires **white / blue** and **blue** with **white / orange** and **orange** to comply with the rule **CAN0 - CAN engine** and **CAN1 - CAN tachograph**

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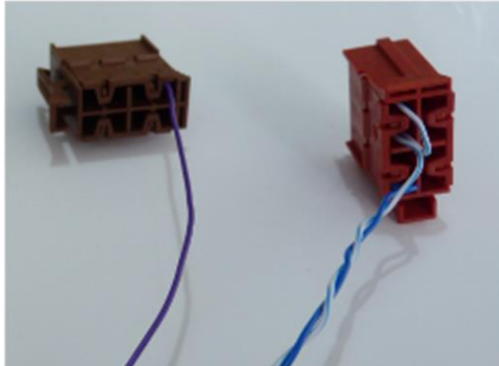
The next step is to connect the EW OBU cable harness with the tachograph. The cable harness to the tachograph is used for this purpose. We connect the cables through FMS extension connector in the vehicle, see below. In most new vehicles, the CAN of the tachograph is available in the FMS connector in positions 6 and 9, can be verified via Web Diagnostics, in this case it is not necessary to connect the wires CAN1\_Low and CAN1\_High of the cable harness to the tachograph with the tachograph. The UAR D8 signal must be connected in all cases.

View of the extension connector in the vehicle :



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After stretching the cable to the tachograph shorten the cable as needed and to crimp the pins and put the „C“ and „D“ connectors see below and plug into the tachograph.

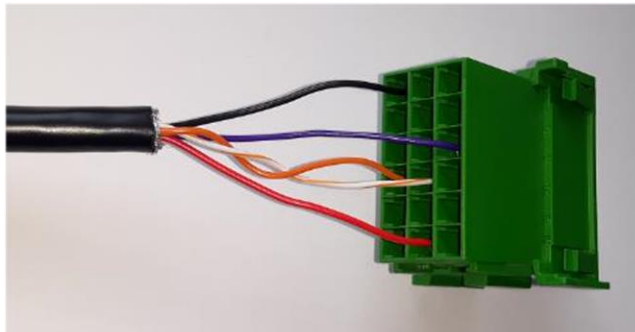


For more information on tachograph engagement see point **6. Connection EW OBU to tachograph**

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### OPTION 3 EVA PLUS/ULTRA - CONNECTION FMS AND TACHOGRAPH ONLY FOR TRUCK OF DAF EURO 6

Required material:



*EW OBU cable harness 3,5m + connector FMS DAF 18pin*

Connecting the wires to the DAF FMS connector:

| POSITION FMS | POSITION NAME     | UNIT CABLE FROM EW OBU | COLORS OF EACH WIRES |
|--------------|-------------------|------------------------|----------------------|
| 1            | 31 GND (-)        | GND                    | BLACK                |
| 9            | Tacho infoline D8 | UAR                    | VIOLET               |
| 10           | CAN0_High         | CAN0_High              | ORANGE               |
| 11           | CAN0_Low          | CAN0_Low               | WHITE/ORANGE         |
| 17           | 30 PWR (+)        | PWR_IN                 | RED                  |

*Manufacturer and type of connector: TE CONNECTIVITY*

*Connector: FLA-STE-GEH2,8 18P*

*Pin: TAB 2.8x0.8 CONTACT CF SRC*

**Attention:** twisted wires white/blue and blue we have to cut and isolate them - in this case of connection are not needed or we can plug them into the connector, but warning from the back side of extension connector in vehicle connector must not be fitted with any wire.



*Pin to connector*



*Connector latch*



*DAF FMS connector 18pin*

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## 6. Connection EW OBU to tachograph

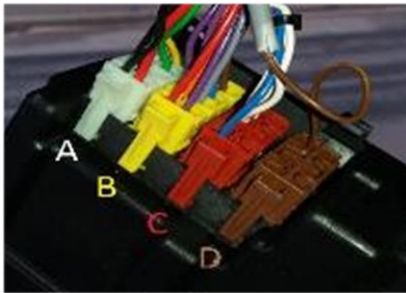
In case of request for tachograph connection, when the signals are not on the FMS extension connector (vehicles DAF), it is **necessary to connect the cable to the tachograph (wires CAN1\_L, CAN1\_H a UAR) directly to the tachograph**. (the CAN of the tachograph can be available in the FMS connector in positions 6 and 9, can be verified via Web Diagnostics).

The connection below:

Basic connection is used for **Siemens VDO** and **Stoneridge tachograph**. A tachograph version is required for functional remote archiving, required is about **Siemens VDO (version 1.3a and higher)** and **Stoneridge (SE5000 and higher)**.

It is necessary to have enable downloading data on the tachograph for CAN line (performed by AMS - Authorized Metrology Center).

The rear side of tachograph, connect only to connector "C" and "D" description of wiring see below:



The positions and colors of the connectors are identical for the **Siemens VDO** and **Stoneridge** tachographs.

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Connector „C“ (red) - remote download (remote archiving of the tachograph):



#### CONNECTION:

position C5 = blue - signal CAN1\_H

position C7 and C8 = white/blue - signal CAN1\_L

A jumper is used between positions C7 and C8 (activation of the internal resistor) only if we measure between CAN\_L and CAN\_H 120Ω in the case of 60Ω we do not connect the jumper !!!

Connector „D“ (brown) - info-line (D8, connect if requested reading of card driver and AETR):



#### CONNECTION:

position D8 = violet - signal UAR

**Note:** If there is any wire in the tachograph at the connector „C“ and „D“ in the positions that are fitted with the our cabling – (Cable harness to the tachograph) CAN1\_L, CAN1\_H and the D8 infoline, We need to connect these wires to our cabling, reinstall them with attached the pins and plug it into the connector according to its position.

**Attention:** If the tachograph is sealed and due to installation it is necessary to break this seal, it is necessary to inform the customer to have the tachograph to seal to AMS - Authorized Metrology Center.



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## 7. Location of the extension FMS connector on specific trucks



# DAF

Where to find: Fuse box on the passenger side – **green** connector.

FMS

Connection according to FMS standard = DAF/FMS connector - 18ti pin.

FMS TACHO

All data – CAN motor + CAN tachograph + AETR D8 in connector FMS.

TACHO AETR D8



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# MAN

Where to find: Behind the tachograph - **green** connector X5080/ST (BU without tachograph)

|               |  |   |
|---------------|--|---|
| FMS connector | In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - tachograph mainly only for new vehicles. If the CAN tachograph is not in the FMS connector (can be verified via web diagnostics), it is necessary to connect directly to the tachograph <b>connector "C"</b> . |   |
| CAN TACHO     | If it is not in the FMS connector, <b>connector "C"</b> must be connected directly to the tachograph.  | CAN_High = <b>connector „C“</b> pin C5<br>CAN_Low = <b>connector „C“</b> pin C7 |
| TACHO AETR D8 | Connect <b>connector "D"</b> directly to the tachograph.   | Infoline, reading AETR = <b>connector „D“</b> pin D8                            |





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# SCANIA

Where to find: Fuse box on the passenger side – **green** connector C137

## FMS connector

In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - CAN engine mainly only for new vehicles. If the CAN motor is not in the FMS connector (**can be verified via web diagnostics**), it is necessary to connect directly in the fuse box (CAN\_High = yellow, CAN\_Low = white) via CAN Sniffer (photo below).

CAN ENGINE: CAN\_High = **yellow**  
CAN\_Low = **white**

## CAN TACHO

Connection according to FMS standard = FMS connector - 12 pin or connector "C"

## TACHO AETR D8

Connect **connector "D"** directly to the tachograph.

Infoline, reading AETR = **connector „D“ pin D8**





# MERCEDES-BENZ

Where to find: Behind the tachograph - **green** connector

FMS connector

In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - tachograph mainly only for new vehicles. If the CAN tachograph is not in the FMS connector (can be verified via web diagnostics), it is necessary to connect directly to the tachograph **connector "C"**.

CAN TACHO

If it is not in the FMS connector, **connector "C"** must be connected directly to the tachograph.

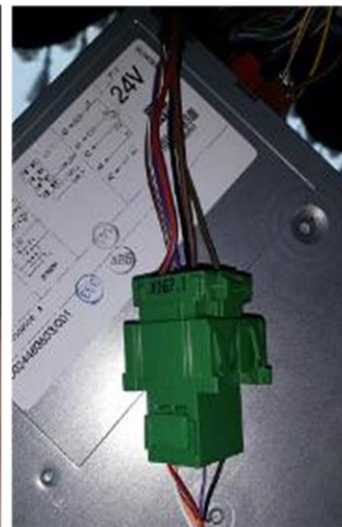
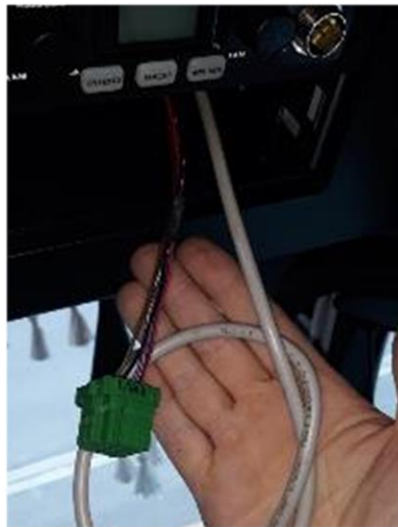
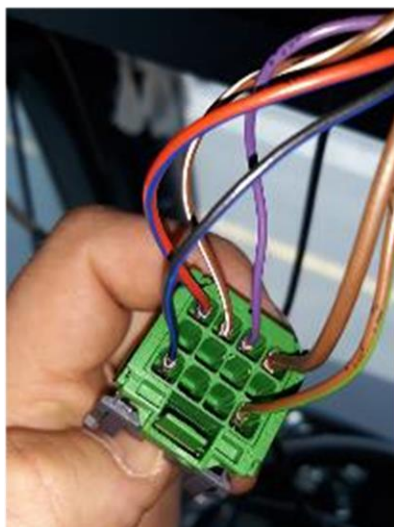
CAN\_High = **connector „C“ pin C5**

CAN\_Low = **connector „C“ pin C7**

TACHO AETR D8

Connect **connector "D"** directly to the tachograph.

Infoline, reading AETR = **connector „D“ pin D8**







# VOLVO TRUCKS

Where to find: Under the fuse box in the center panel - **green** connector

## FMS connector

In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - tachograph mainly only for new vehicles. If the CAN tachograph is not in the FMS connector (can be verified via web diagnostics), it is necessary to connect directly to the tachograph **connector "C"**.

## CAN TACHO

If it is not in the FMS connector, **connector "C"** must be connected directly to the tachograph.

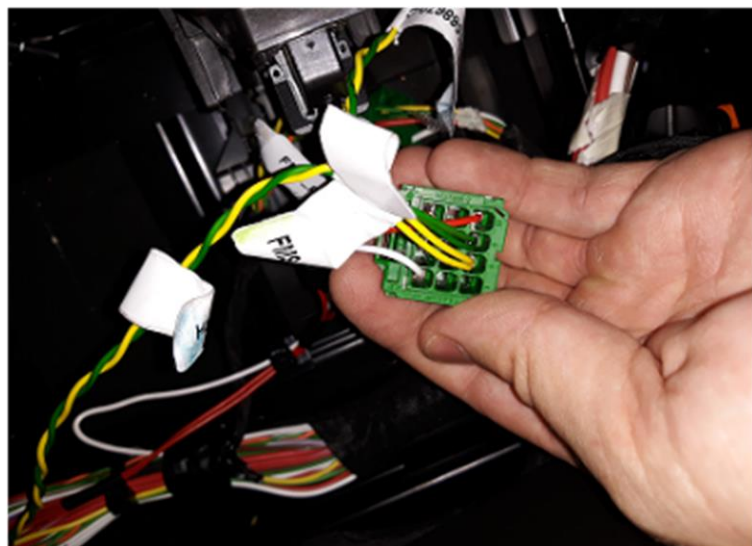
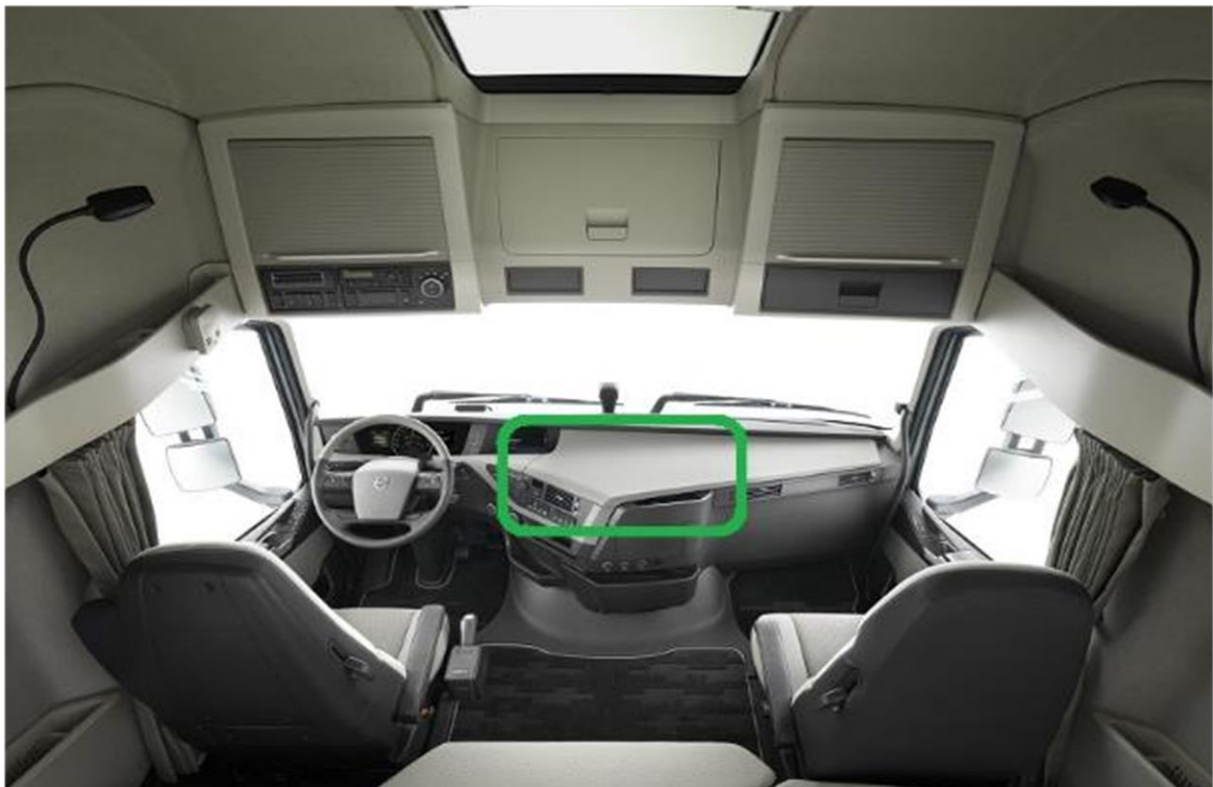
CAN\_High = **connector „C“ pin C5**

CAN\_Low = **connector „C“ pin C7**

## TACHO AETR D8

Connect **connector "D"** directly to the tachograph.

Infoline, reading AETR = **connector „D“ pin D8**

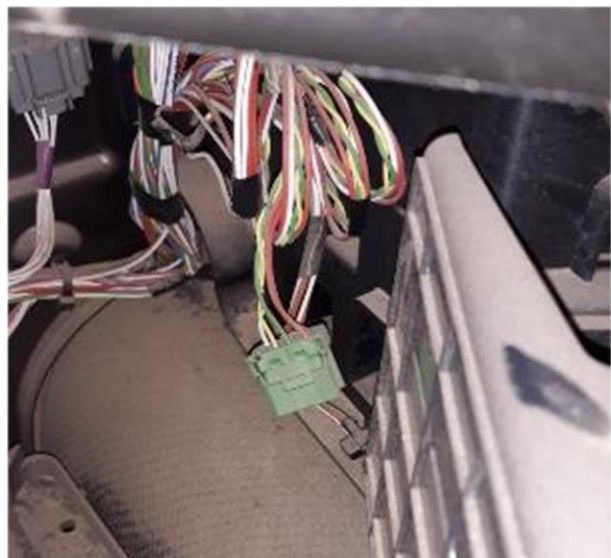




# RENAULT TRUCKS

Where to find: Next to the steering wheel under the air conditioning control panel – **green** connector

|               |  |   |
|---------------|--|---|
| FMS connector | In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - tachograph mainly only for new vehicles. If the CAN tachograph is not in the FMS connector (can be verified via web diagnostics), it is necessary to connect directly to the tachograph <b>connector "C"</b> . |   |
| CAN TACHO     | If it is not in the FMS connector, <b>connector "C"</b> must be connected directly to the tachograph.  | CAN_High = <b>connector „C“</b> pin C5<br>CAN_Low = <b>connector „C“</b> pin C7 |
| TACHO AETR D8 | Connect <b>connector "D"</b> directly to the tachograph.   | Infoline, reading AETR = <b>connector „D“</b> pin D8                            |







# IVECO

Where to find: Behind the tachograph – **green** connector

|               |  |   |
|---------------|--|---|
| FMS connector | In the FMS connector = (FMS connector - 12-pin) CAN engine + CAN tachograph - tachograph mainly only for new vehicles. If the CAN tachograph is not in the FMS connector (can be verified via web diagnostics), it is necessary to connect directly to the tachograph <b>connector "C"</b> . |   |
| CAN TACHO     | If it is not in the FMS connector, <b>connector "C"</b> must be connected directly to the tachograph.  | CAN_High = <b>connector „C“</b> pin C5<br>CAN_Low = <b>connector „C“</b> pin C7 |
| TACHO AETR D8 | Connect <b>connector "D"</b> directly to the tachograph.   | Infoline, reading AETR = <b>connector „D“</b> pin D8                            |

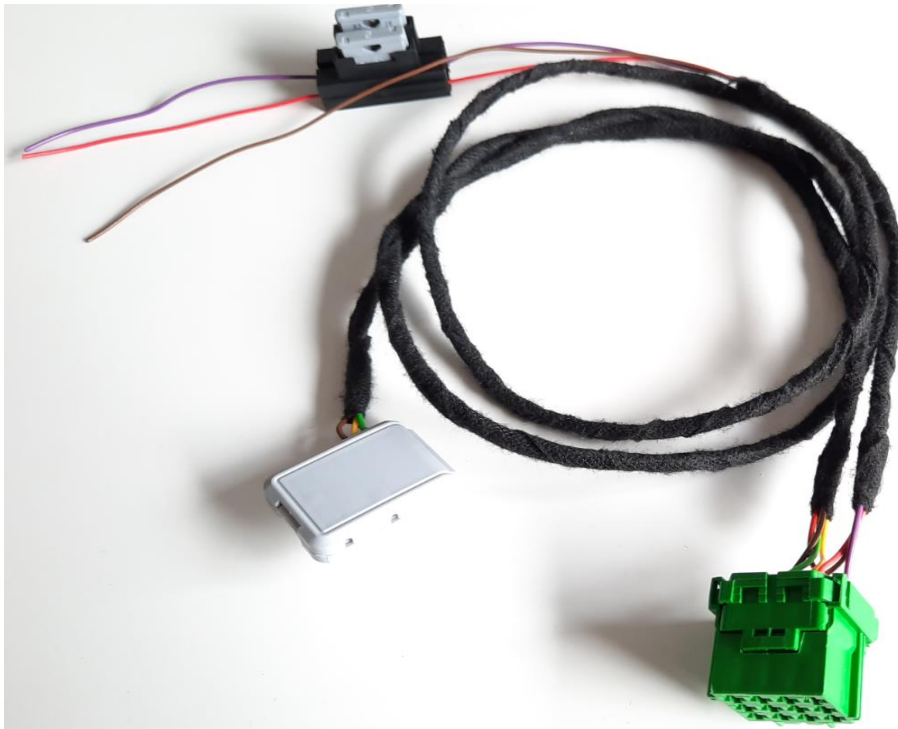


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## 8. Installation of EW OBU with no extension FMS connector or FMS connector does not active CAN-BUS

It is necessary to note that this connection is not standard and we install only at the express request of the customer.

The cable is intended for the installation of the EW OBU without an extension FMS connector, see below:



**NOTE:** This cable not yet available, until then, it is necessary to order a separate contactless CAN reader from us. The power supply of the unit "KL30" and "KL15", without the extension FMS in vehicle must always be connected via a 2A fuse.

The cable is fitted on one side with a extension FMS connector, which serves as a replacement for the extension FMS connector in the vehicles. The cable must be connected to the vehicle's on-board network using wires "31 GND (-)", "30 PWR (+)" and "15 ING (+)" (we will use the necessary fastons for connection) and via a contactless CAN reader on the vehicle CAN-BUS, see below **9. Connection points on specific trucks wit no extension FMS connector**

**Note:** if a tachograph connection is required, we do not connect and insulate the "15 ING (+)" wire. If the tachograph is connected, the wire is replaced by the UAR signal - infoline D8 which we connect directly to the tachograph, connector D.

The positions of the wires on the EW OBU cable harness remain the same and it is necessary to insert them into the enclosed FMS connector, see the individual connection options in chapter – **5. Possible variants of the required cabling according to the type of connection**

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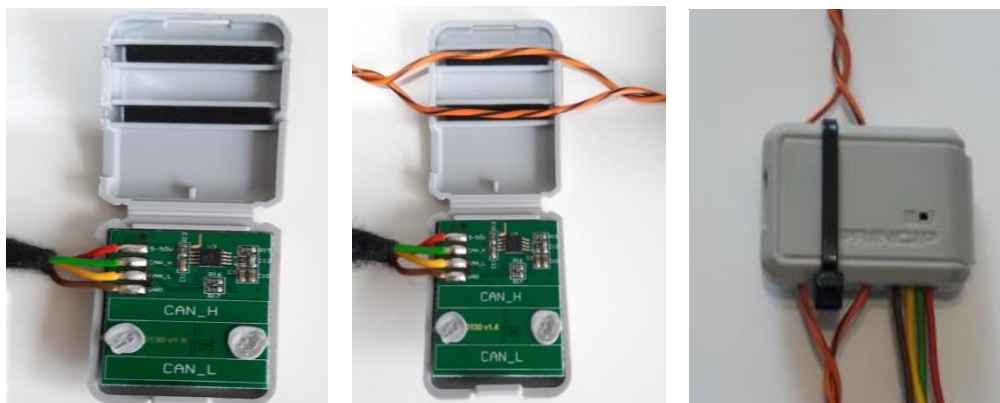
## Description of wires:

| WIRE COLOR | SIGNAL NAME            | POSITION IN THE CONNECTOR | NOTE  |
|------------|------------------------|---------------------------|---|
| RED        | Signal PWR_IN – „KL30“ | 12                        | Connect in the vehicle to „KL30“  |
| VIOLET     | Signal ING - „KL15“    | 10                        | If the tachograph is connected, we do not connect, otherwise in the vehicle to „KL15“ |
| BROWN      | Signal GND „KL31“      | 1                         | Connect in the vehicle to „KL31“  |

## CAN-BUS connection:

A contactless CAN reader is used to connect the CAN-BUS in the vehicle, see below. The CAN-BUS wires must be inserted into the slots at the top of the reader (CAN\_L - upper groove, CAN\_H - lower groove), click and secure with a cable tie. See below for CAN-BUS connection points according to the vehicle type – **9. Connection points on specific trucks with no extension FMS connector.**

After installing the reader on the CAN-BUS, always check whether we are reading the required information. If there is no information on the CAN-BUS, try connecting the reader to other twisted data wires in the vehicle.



## Connection of a contactless CAN reader in the vehicle:



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**Note** - if there is extension FMS connector in the vehicle but does not active FMS or only a CAN tachograph (mainly for Scania), it is necessary to use a contactless CAN reader and connect it directly to the supplied EW OBU wiring harness and then connect to the CAN-BUS in the vehicle. Cut the contactless CAN reader from this cable and crimp it directly on the EW OBU cable harness, using the supplied pins.


Description of wires on the contactless CAN reader:


| POSITION | SIGNAL NAME | WIRE COLOR |
|----------|-------------|------------|
| GND (-)  | GND (-)     | BROWN      |
| CAN_High | CAN_High    | GREEN      |
| CAN_Low  | CAN_Low     | YELLOW     |
| 5 -50V   | PWR_IN      | RED        |



## 9. Connection points on specific trucks with no extension FMS connector

|   |                                      |   |
|---|--------------------------------------|---|
|  <h1>DAF</h1> |                                      |   |
| Connection without FMS connector  |                                      |   |
| Where to find:  |                                      | Comment   |
| Power supply  | In fuse box.                         | 31 GND (-), 30 PWR (+), 15 IGN (+)                                |
| CAN-BUS   | In fuse box connect via CAN-Sniffer. | CAN_Low = YELLOW<br>CAN_High = BLUE                               |
| CAN TACHO   | Connect directly to the tachograph.  | CAN_High = connector „C” pin C5<br>CAN_Low = connector „C” pin C7 |
| TACHO D8  |                                      | Infoline, reading AETR = connector „D” pin D8                     |

|  |  |   |
|--|--|---|
|  <h1>MAN</h1> |  |   |
| Connection without FMS connector   |  |   |
| Where to find:   |  | Comment   |
| Power supply   | We find connection points on the back of the fuse box with metric screws M10 a M8. | M8 = 31 GND (-), M10 = 30 PWR (+), 15 IGN (+)                     |
| CAN-BUS  | In fuse box connect via CAN-Sniffer.   | CAN_Low = BLUE/WHITE<br>CAN_High = BLUE/RED                       |
| CAN TACHO  | Connect directly to the tachograph.  | CAN_High = connector „C” pin C5<br>CAN_Low = connector „C” pin C7 |
| TACHO D8   |  | Infoline, reading AETR = connector „D” pin D8                     |

|  |  |   |
|--|--|---|
|  <h1>SCANIA</h1> |  |   |
| Connection without FMS connector   |  |   |
| Where to find:   |  | Comment   |
| Power supply   | We find connection points on the back of the fuse box. | 31 GND (-), 30 PWR (+), 15 IGN (+)                                |
| CAN-BUS  | In fuse box connect via CAN-Sniffer.                   | CAN_Low = WHITE<br>CAN_High = YELLOW                              |
| CAN TACHO  | Connect directly to the tachograph.                    | CAN_High = connector „C” pin C5<br>CAN_Low = connector „C” pin C7 |
| TACHO AETR D8  |  | Infoline, reading AETR = connector „D” pin D8                     |



# MERCEDES-BENZ

| Connection without FMS connector |  |   |
|----------------------------------|--|---|
| Where to find:                   |  | Comment   |
| Power supply                     | Under the fuse box, we find connectors where we can connect.<br><b>White</b> connector <b>X18</b> = 31 GND (-).<br><b>Grey</b> connector <b>X17</b> = left side 30 PWR (+), right side 15 IGN (+). | <b>31 GND (-), 30 PWR (+), 15 IGN (+)</b>                                       |
| CAN-BUS                          | In fuse box connect via CAN-Sniffer.   | CAN_Low = <b>YELLOW</b> or <b>GREEN</b><br>CAN_High = <b>BLUE</b>               |
| CAN TACHO                        | Connect directly to the tachograph.  | CAN_High = <b>connector „C“ pin C5</b><br>CAN_Low = <b>connector „C“ pin C7</b> |
| TACHO AETR D8                    |  | Infoline, reading AETR = <b>connector „D“ pin D8</b>                            |



# VOLVO TRUCKS

| Connection without FMS connector |   |   |
|----------------------------------|---|---|
| Where to find:                   |   | Comment   |
| Power supply                     | From the right side of the fuse box, we find a switchgear where we can connect. | <b>31 GND (-), 30 PWR (+), 15 IGN (+)</b>                                       |
| CAN-BUS                          | In fuse box connect via CAN-Sniffer.  | CAN_Low = <b>GREEN</b><br>CAN_High = <b>YELLOW</b>                              |
| CAN TACHO                        | Connect directly to the tachograph.   | CAN_High = <b>connector „C“ pin C5</b><br>CAN_Low = <b>connector „C“ pin C7</b> |
| TACHO AETR D8                    |   | Infoline, reading AETR = <b>connector „D“ pin D8</b>                            |



# RENAULT TRUCKS

| Connection without FMS connector |  |   |
|----------------------------------|--|---|
| Where to find:                   |  | Comment   |
| Power supply                     | There is a <b>gray CB8</b> connector (30 PWR, 15 IGN) on the back of the fuse box. | <b>31 GND (-), 30 PWR (+), 15 IGN (+)</b>                                       |
| CAN BUS                          | In fuse box connect via CAN-Sniffer.   | CAN_Low = <b>GREEN</b><br>CAN_High = <b>YELLOW</b>                              |
| CAN TACHO                        | Connect directly to the tachograph.  | CAN_High = <b>connector „C“ pin C5</b><br>CAN_Low = <b>connector „C“ pin C7</b> |
| TACHO AETR D8                    |  | Infoline, reading AETR = <b>connector „D“ pin D8</b>                            |

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# IVECO

## Connection without FMS connector

| Where to find: |  | Comment   |
|----------------|--|---|
| Power Supply   | We find connection points on the back of the fuse box. | <b>31 GND (-), 30 PWR (+), 15 IGN (+)</b>                                       |
| CAN BUS        | In fuse box connect via CAN-Sniffer.                   | CAN_Low = <b>GREEN</b><br>CAN_High = <b>WHITE</b>                               |
| CAN TACHO      | Connect directly to the tachograph.                    | CAN_High = <b>connector „C“ pin C5</b><br>CAN_Low = <b>connector „C“ pin C7</b> |
| TACHO AETR D8  |  | Infoline, reading AETR = <b>connector „D“ pin D8</b>                            |

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## 10.The Diagnostics of EW OBU

Diagnostics is required to configure the EW OBU and to check the functions of the EW OBU. **It must be done after each installation.**

Diagnostics is available via the web interface [diag.princip.cz](https://diag.princip.cz) for registered users with assigned credentials (username and password).



The login form is located on a light gray background. At the top left is a blue button labeled "New user". Below it, the label "Username" is followed by a white input field containing the placeholder text "Username". Underneath, the label "Password" is followed by a white input field containing the placeholder text "Password". At the bottom left is a blue button labeled "Log in".

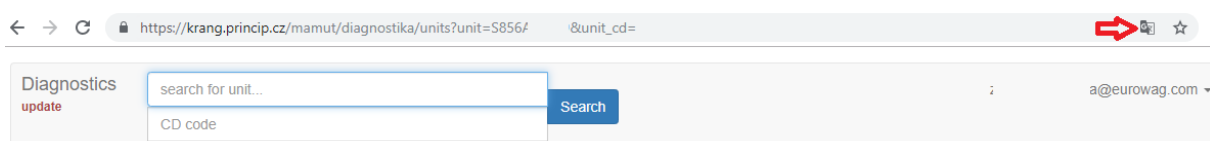
### NEW (NOTE REGISTERED) USER

New user without an account (without credentials) must register using a registration form (click the button **"New user"** on the main screen to open the form).



The registration form is located on a light gray background. At the top left is a blue button labeled "New user". Below it, the label "Name:" is followed by a white input field. Underneath, the label "Surname:" is followed by a white input field. Below that, the label "E-mail:" is followed by a white input field. Then, the label "Phone number:" is followed by a white input field. Finally, the label "Company name:" is followed by a white input field. At the bottom left is a blue button labeled "Register".

**Recommended:** Diagnostics is available in English version only => if started in Google Chrome you can use automatical translation to your native language using the icon in the right part of the URL.



The screenshot shows a web browser window. The address bar contains the URL "https://krang.princip.cz/mamut/diagnostika/units?unit=S856f&unit\_cd=". Below the address bar, the page header shows "Diagnostics" with a red "update" status indicator. To the right of the header is a search bar with the placeholder text "search for unit..." and a blue "Search" button. Below the search bar is a smaller input field with the placeholder text "CD code". In the top right corner of the page, the email address "a@eurowag.com" is displayed with a dropdown arrow.

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## GENERAL RULES

After successful login the homepage with following options will appear:

- „**Search for unit...**“: enter Serial Number (S/N) of the EW OBU (in format e.g.: S850A0xxxx) and press the button **“Search”**
- „**CD code**“: enter the code – available on Web diagnostic – Service Manuals ENG - [7. C-D code \(S850A...\).xlsx](#)
- „**Update**“: is used for page update
- „**Service manuals**“: to press the button will open storage with all available instructions and schemes for installing all types of units including EW OBU
- „**Diagnosed units**“: to press the link will display history of previously diagnosed EW OBU (if available)

Diagnosis update admin ▾

search for unit... Search

CD code

Contact: diag@princip.cz, +420 735 762 681

Service Manuals

Diagnosed units

## TEST INSTRUCTIONS

For successful completion of all selected and started tests it is extremely important to read and follow all test instructions stated in the header of each test!

Key on  
(before 2 hours)

Select test type and follow the instructions

- OBU connected to the cigarette lighter (Accelerometer):
  - press "Run the test" button to confirm selected value.
- KL15 (voltage behind ignition on):
  - switch the key on and run the test.
- OBU connected to the tachograph (selected type):
  - the unit will be configured
  - "Key on" test and OBU connection to the tachograph will be evaluated based on engine speed
  - connect the unit to the selected tachograph type
  - switch the key on and press "Run the test" button

Run the test Select test type ▾

Cancel

## THREE-COLOR RULE

Test status/result by color:


- **RED**: test failed (or mandatory test if the test has not been run yet)
- **BLUE**: test in progress (necessary **update** or **reload** page until the test is completed)
- **GREEN**: test/configuration successfully completed

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|        |
|--------|
| Key on |
| Key on |
| Key on |

**Important:** to see current data you must constantly update Diagnostics.

=> click „update“ or „reload“ button!

Diagnostics  
update 

Search

lang@princip.cz ▾

Key on  
(before 9 minutes)

Abort the test

  
Waiting for connection with the unit, **reload** the page ....

## LIST OF AVAILABLE CONFIGURATION/TEST OPTIONS

Diagnostics  
update

Search

admin ▾

Service Manuals

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## DESCRIPTION OF INDIVIDUAL TESTS OR CONFIGURATIONS

„Green“ and „red“ rules described in the text below apply equally to all tests.

### KEY ON

The “Key on” test (based on selected type of connection) is used as:

- standalone check of communication with the EW OBU
- standalone check of the voltage behind the key, the GPS signal and the still power supply
- combination of simple “Key on” test and configuration + check the data reading from Info line D8 on the VDO/Continental or Stoneridge tachograph

Brief description of expected behaviour based on selected type of connection is described in the text below.

#### EW OBU connected to the cigarette lighter (Accelerometer)

Button “Run the test” starts EW OBU communication test. Selected value “OBU connected to the cigarette lighter (Accelerometer)” is saved for further processing.

The screenshot shows a web interface for running a test. At the top, there is a blue button labeled "Run the test" and a dropdown menu currently showing "OBU connected to the cigarette lighter (Accelerometer)". Below this is a blue button labeled "Cancel". At the bottom, a green status bar displays the text "TEST - OK - 2019-06-26 15:39:05 - admin".

#### KL15 (voltage behind ignition on)

The basic EW OBU test includes check of:

- the still power supply “KL30”,
- the voltage behind the key “KL15”,
- the GPS signal.

The screenshot shows the same web interface as above, but with the dropdown menu set to "KL15 (voltage behind ignition on)". The "Run the test" button is visible. Below the "Cancel" button, a green status bar displays "TEST - OK - 2019-06-26 09:52:59 - admin". Below this, there is a table of test results:

| Key on test | key on   |
|-------------|--|
| GPS         | GPS position measured, number of satellites: 9   |
| S           | OK GPS=9 u=3 A=2,2,2,2 APN=princip.cz(-) alive=3h aux=nmea id=(-) SN=S # FW=7,1,2,12 vwd10/off: 15l 2261000m MIL=0 service-km -d |

Test completed successfully

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Run the test

KL15 (voltage behind ignition on) ▼

Cancel

TEST - ERROR - 2019-07-08 12:33:29 - admin

|             |         |
|-------------|---------|
| Key on test | Key off |
|-------------|---------|

KL15 - test failed (it is necessary to check the voltage KL30, KL15 and GPS signal)

EW OBU connected to the tachograph (D8 – Stoneridge or D8 – VDO/Continental)

Test is used to:

- configure the unit,
- check of data reading from Info line D8, AETR (connector D, position 8) on the selected tachograph type; within this test the “**Key on**” test is executed and evaluated (during this test, the key is activated by the engine speed - the vehicle must be started)

Key on (EW OBU connected to the tachograph)

Run the test

OBU connected to the tachograph (D8 - Stoneridge) ▼

Cancel

TEST - OK - 2019-07-02 11:10:58 - admin

|             |   |
|-------------|---|
| Key on test | key on  |
| GPS         | GPS position measured, number of satellites: 9  |
| S           | OK GPS=9 u=3 A=2,2,2,2 APN=princip.cz(-) alive=3h aux=nmea id=(-) SN=5 4( 9 FW=7.1.2.12 vwd10/off: 15l 2261000m MIL=0 service--km --d |
| DTCO UAR    | function verified   |

Test completed successfully

Run the test

OBU connected to the tachograph (D8 - VDO/Continental) ▼

Cancel

TEST - ERROR - 2019-08-26 20:26:22 - ; @eurowag.com

|             |   |
|-------------|---|
| Key on test | key off   |
| GPS         | GPS position measured, number of satellites: 20   |
| S           | OFF GPS=20 u=1 A=0,0,0,0 APN=princip.cz(-) alive=0m aux=sh uar=dtco(5h) aux2=sh id=uar(-) SN=S8 iA 9 FW=7.1.3.5 fms/off: total=81411100ml |
| DTCO UAR    | function verified   |

Test failed (it is necessary to check the voltage KL30, D8 connection, engine running and GPS signal)



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## The „Key off“

The basic EW OBU test that checks the voltage behind the key.

Key off  
(before 1 minute)

- Switch the key off

Run the test

Cancel

TEST - OK - 2019-06-26 20:12:48 - z i@er .om

|              |  |
|--------------|--|
| Key off test | key off  |
| S            | OFF GPS=20 u=1 A=0,0,0,0 APN=princip.cz(-) alive=0m aux=sh uar=dtco(5h) aux2=sh id=uar(-) SN=St A FW=7.1.3.5 fms/off: total=81411100ml |

Test completed successfully

Key off  
(before 10 seconds)

- Switch the key off

Run the test

Cancel

TEST - ERROR - 2019-06-18 11:16:10 - z a@eurowag.com

|              |   |
|--------------|---|
| Key off test | key on  |
| S            | OK GPS=16 u=3 A=0,0,0,0 APN=princip.cz(-) alive=0m aux=sh uar=dtco(0s) aux2=sh id=uar(1) SN=S856A 2 FW=7.1.3.5 fms/off: 96% total=76403137ml 323615605m 1779rpm 96C 24400kg |

The test failed (make sure the engine is off and try again, it may take a while for the key to fall off)

## Test „CAN0“

The „CAN0“ test configures and tests reading of connected CAN-BUS or tachograph data – proper connection type must be selected for succesful testing:

- **FMS** test type: only FMS data are available on CAN BUS - tachograph is not connected;
  - **FMS + Tachograph download** test type: FMS data and tachograph data should be available on CAN BUS;
- If the tachograph data is not available, connect the tachograph to the second CAN interface (CAN1), select and run following test „tachograph download from CAN1“.

## v1.5

CAN0

Select test type and follow the instructions

\* the unit will be configured

- switch the key on

Run the test

Select test type

Select test type

FMS

FMS + Tachograph download

CAN0  
(before 2 hours)

Select test type and follow the instructions

\* the unit will be configured

- switch the key on

Run the test

FMS

Cancel

TEST - OK - 2019-05-26 09:58:48 - admin

|                        |   |
|------------------------|---|
| Key on test            | key on  |
| testcan for fms, can 0 | Ok set 320 kbd, active                                |
| pti                    | fuel_type:8 obd.c0 dist:1449 km obd.c0 vel:2 km/h gps |

Test completed successfully

## CAN0 – FMS + Tachograph download

Run the test

FMS + Tachograph download test

Cancel

TEST - OK - 2019-07-31 07:45:13 - i

Key on test

key on

DTC

Tachograph detected, download will be working

pti

fuel\_L:83.1 % fms.c0 sa39 tott\_L:12451.095 fms.c0 sa0 dist:46324.105 km fms.c0 sa238 vel:86.89 km/h fms.c0 sa39 rpm:1018 rlm fms.c0 sa0 load:83 fms.c0 sa0 drvst:driving/short\_break card:1/0 uar iddev:st login key:f fms.c0 sa0 vehhrs:257.8 h fms.c0 sa39 to\_service:238 days:53675 km fms.c0 sa39 sumfuel\_L:12391.204588 fms.c0 sa0 brake:0 % acc:0 % weight\_sum:0.1 (7+7) fms.c0 sa39 weight\_gross:241 fms.c0 sa11

Test completed successfully

Key on test

key on

DTC

Interface is not working, no CAN line traffic detected.

pti

Fuel or/and km not found, or invalidated values detected (INV):

|          |               |
|----------|---------------|
| ptiv_anc | none          |
| level    | 0.14 km/h gps |
| ptiv     | 0             |

The test failed (no data is read from the CAN BUS, check the connection)

DTC

FMS detected, tachograph did not respond – to enable tachograph download make the connection directly to the tachograph via CAN1

The test failed (on the CAN line data only from the FMS, to download the tachograph it is necessary to connect the second CAN directly to the tachograph)

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### Test „TACHOGRAPH DOWNLOAD FROM CAN1“

The „tachograph download from CAN1“ test is used to test tachograph download connected via CAN1.

tachograph download from CAN1

(before 2 hours)

- switch the key on

Run the test

Cancel

TEST - OK - 2019-06-26 16:38:31 - admin

Key on test

key on

DTC

Tachograph detected, download will be working

### Test completed successfully

tachograph download from CAN1

(2019-05-20)

- switch the key on

Run the test

Cancel

TEST - ERROR - 2019-05-20 18:27:13 - z i@eu m

Key on test

key on

DTC

Interface is not working, no CAN line traffic detected.

Test failed (it is necessary to check connection, if everything is OK, the tachograph does not support remote archiving or does not active communication over the CAN line)



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[www.eurowag.com](http://www.eurowag.com)

Revision 1.5, March 2021