


# Installation Instruction

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## 1 History

Rev.	Date	Status	Author	Remarks
1.0	29.06.2017	Final	Anton Kolar	
1.1	26.07.2017	Final	Dr. Marion Grüner	Update after review from the test lab "Seimic"
1.2	03.08.2017	Final	Dr. Marion Grüner	Update after review from the test lab "Seimic" about the usage of the antennas

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## 2 Delivery content and general note

### Delivery Content

FLEX CM Telematics Unit

Connection cable (optional)

GNSS antenna (optional)

Installation Instruction

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**Note:** Please be aware, the installation location of the device has to be in a minimum distance of 20cm of the head of a human.

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**Note:**

**FCC compliance statement**

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

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**Note:**

**Non-modification warning statement**

*Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

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**Note:**

**Usage of antennas**

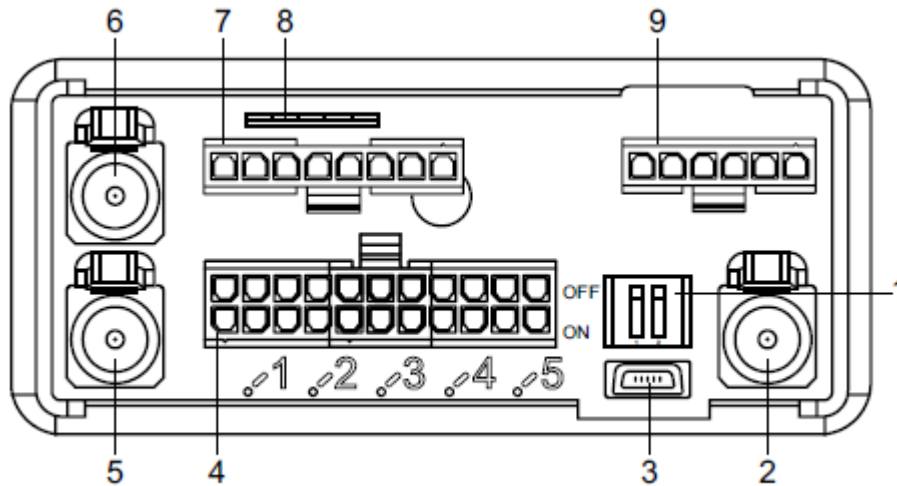
*Do NOT substitute any antenna for the one supplied by or recommended by the manufacturer. Substituting an antenna may expose a person or persons to harmful radio frequency radiation. Contact the manufacturer for further instructions.*

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### 3 Connection Overview and DIP Switches

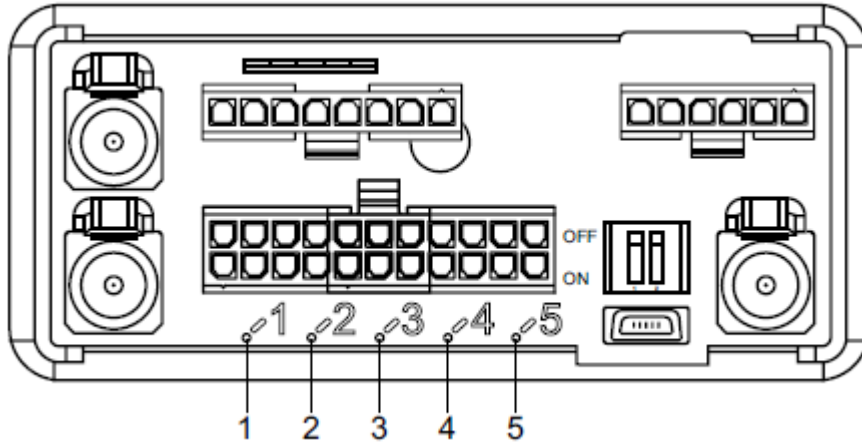


Item	Designation
1	DIP switches for CAN3 high / low termination setting (OFF / ON)
2	WLAN antenna connector
3	Mini USB connector
4	Main connector (i.e. to connect a DTCCO® 1381)
5	GPS antenna connector
6	GSM antenna connector
7	8-pin interface connector
8	Micro SIM card
9	6-pin interface connector


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## 4 Location of LEDs



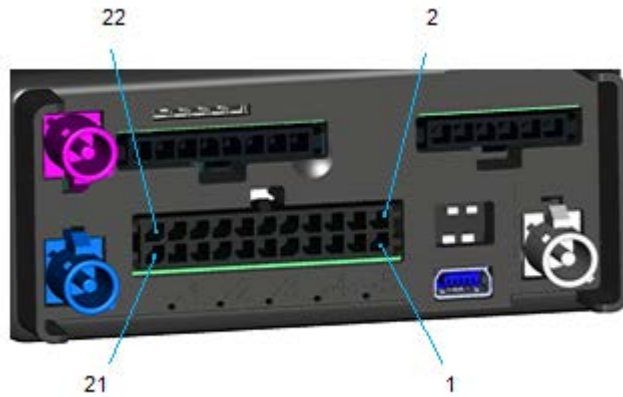
LED	Designation
1	Green; Free programmable LED
2	Red; during boot / Free programmable LED
3	Green; Free programmable LED
4	Green; Free programmable LED
5	Green; Free programmable LED

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## 5 Connection diagram

### 5.1 Main connector



Item	Designation	Item	Designation
1	Terminal 31	12	CAN 3 high
2	Terminal 30	13	Ground
3	Ground (RS232)	14	D8
4	Terminal 15	15	Ground
5	Ground	16	Digital Input 1
6	Not connected	17	Digital Output High Side
7	Ground	18	Not connected
8	Not connected	19	Ground
9	Ground	20	Not connected
10	CAN 3 low	21	RS232 TX line
11	Ground	22	RS232 RX line

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## 5.2 8-pin and 6-pin interface connectors



Item	Designation
1	CAN 1 high
2	CAN 1 low
3	Ground
4	Digital Input 2
5	Digital Input 3
6	Digital Input 4
7	Analog Input 1
8	Ground

Item	Designation
1	CAN 2 high
2	CAN 2 low
3	Ground
4	Digital Input 5
5	Digital Input 6
6	Digital Output Low Side

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### 5.3 External GNSS antenna connector



### 5.4 External WLAN antenna connector




### 5.5 External GSM antenna connector



### 5.6 USB 2.0 OTG connector



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### 6 General Safety Notes

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**Warning:** Risk of electric shock

All work on the electrical system must only be carried out by a specialist workshop.

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**Warning:** Danger of short circuits

Bear in mind that during all installation work (especially when working on the vehicle's electrical system), the vehicle manufacturer's instructions must be adhered to.

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**Warning:** Before removing the connection terminals from the battery, observe the following points:

- Switch off all electrical consumers.
  - Disconnect the negative battery terminal before the positive battery terminal.
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**Warning:** Secure all power cables in accordance with the guidelines.


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**Warning: Danger of explosion**

When loading and unloading hazardous goods onto / from ADR vehicles and in environments that are at risk of explosion, the DTCCO® 1381 front interface must be closed, i. e.

- The FLEX CM Telematics Unit power circuit must be switched off via the vehicle's master switch.
  - There must be no plug connections to the DTCCO® 1381 and no data being downloaded.
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**Caution:** Do not run the cables over sheet metal or plastic parts with sharp edges.

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**Caution:** Do not bend the cables.

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**Caution:** Do not install the FLEX CM Telematics Unit near shelves or moving parts, e.g. airbags and covers.

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**Note:** Installation and setup work may only be carried out by service technicians.

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**Note:** In addition to the above instructions, please also note the Service Information documents on the VDO Extranet at <http://extranet.vdo.com> or ask your service partner.

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**Note:** Please observe the rules and regulations (which apply in your country) for accident prevention and the recognized specialist technical rules for safe and professional working.

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## 7 Installation Requirements

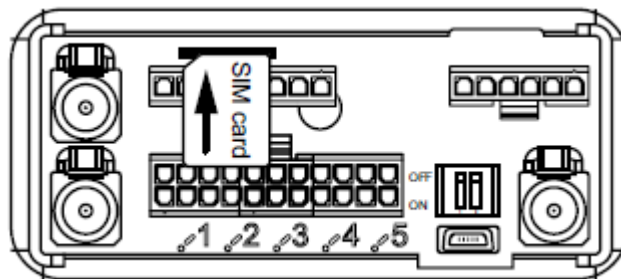
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**Note:** Use the overview on page 2 to check that all the items in the FLEX CM Telematics Unit package are present.

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The FLEX CM Telematics Unit can only collect data and communicate with other devices if:

- A SIM card is inserted and a contract for GPRS data transfer has been concluded.




- The GPS antenna has already been properly installed in the vehicle and the connection cable has been run to the FLEX CM Telematics Unit's installation location (see the following note).

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**Note:** For detailed information on how to install the GPS antenna, please refer to the enclosed manufacturer's instructions.

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### 8 Required FLEX CM Telematics Unit connections

- Connection to the power supply
- Connection to the ignition signal and to ground
- Connection to the vehicle via a CAN interface

### 9 FLEX CM Telematics Unit installation locations

You can choose the installation location. We recommend, however, that you install the device into the dashboard.

Please also note the following warnings and instructions:

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**Warning:** Do not cover any defroster vents on the dashboard with the FLEX CM Telematics Unit and note any other devices (in the background) before fixing the device.

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**Note:** The driver must have a sufficient field of vision under all operating and weather conditions when the device is mounted on the dashboard.

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**Note:** When installing the device observe a safety distance of at least 25 cm between the device and any person travelling in the vehicle.

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**Note:** If the FLEX CM Telematics Unit is to be installed in locations where higher requirements must be met (presence of humidity, vapour, oil, etc.), the device should be installed with the connection strip facing down.

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**Note:** Fix the cables at short intervals (approx. every 500 mm) so that they do not vibrate.

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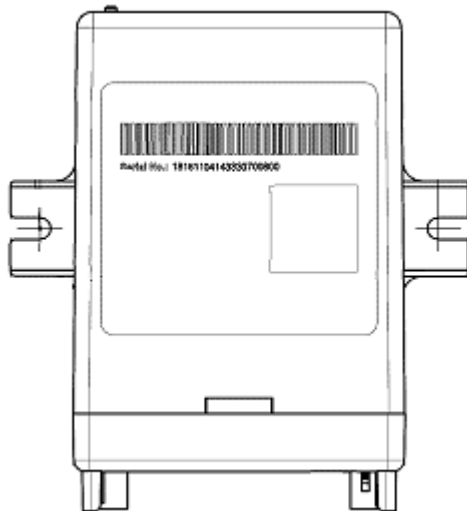
**Note:** When installing into the dashboard, make sure that the FLEX CM Telematics Unit can be removed quickly, e. g. to carry out a manual firmware upgrade or for installing a different antenna.


Tip: Put the sticker (included in the package) over the DIP switch and USB interface openings in the housing to prevent any foreign matter getting into the device.

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## 10 Installation Position

To fulfill the IP class of the device, the device has to be installed that the opening for connectors/cables are on bottom side.



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## 11 Installing the FLEX CM Telematics Unit

### Requirements

- Installation location determined
- Power supply and CAN interface cables installed
- GPS antenna and connection cable installed

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**Note:** Please observe the notes from page 10 to page 14.


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1. Fix the FLEX CM Telematics Unit in the installation location. Screw on the FLEX CM Telematics Unit with two screws.  
The device can be fixed by screws M5.  
Washer or screw with flange to be used.  
Torque: max. Torque 6,5Nm.
2. Connect the power cable and CAN interface cable to the relevant connections in the vehicle.

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**Please note:** the manufacturer's instructions when doing this (see the figures on pages 7 to 9 and 14).

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## 12 Setting the termination resistance

Delivery condition: The CAN interface termination resistors are disabled (the switches are set to OFF and point in the direction of the top interface connector).  
The DIP switches for setting the CAN termination resistance on the FLEX CM Telematics Unit are located above the mini USB connection (see page 4).

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**Note:** The DIP switches only have to be set when connecting the FLEX CM Telematics Unit using the 22-pin main connector (see page 4).

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**Caution:** When using the FLEX CM Telematics Unit together with the CAN interface, the two termination resistors must be enabled, if the resistors terminate the CAN line (the switches set to ON and point in the direction of the mini USB connector).

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**Note:** When using CAN interfaces on the 6-pin or 8-pin plug, termination resistors are not pre-installed.

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## 13 GNSS recording

If you want the FLEX CM Telematics Unit to record GNSS data, you must connect the external antenna (see page 4).

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**Note:** For detailed information on how to install the GNSS antenna, please refer to the enclosed manufacturer's instructions.

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**Note:** The GNSS antenna has to be mounted at a distance of at least 20 cm distance to any other GNSS antenna (if available).


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## 14 Technical data and requirements

FLEX CM Telematics Unit	
Dimensions	L 130 x W 116 x H 40 mm
Power supply	9 V - 32 V
Power consumption	Active mode: RMS consumption of 500 mA at 12 V Peak consumption: 2 A at 12 V Sleep mode: up to 50 mA at 12 V (depending on the configuration)
Temperature range	Storage: -40 °C to 85 °C  Operating: -40 °C to 70 °C
Backup battery	none
Protection class	IP54 on 5 sides IP42 on 1 side if installed with the connection strip facing down
In-line fuse protection	5 A (into the harness, if in delivery)
USB	Type 1.1 and 2.0

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