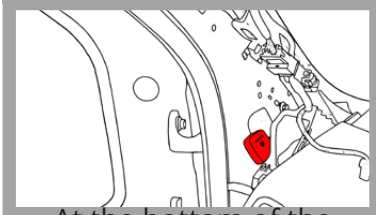
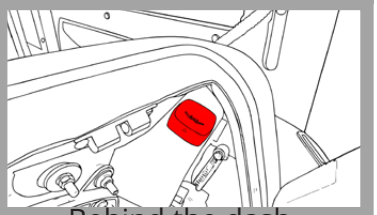
12. ANTENNAS

GSM, GSM/LTE & GPS POSITIONS (M40X)

GPS POSITION EXAMPLES:

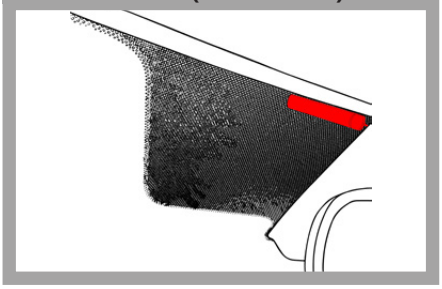


At the bottom of the a-pillar.

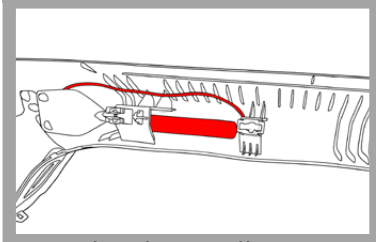


Behind the dash.

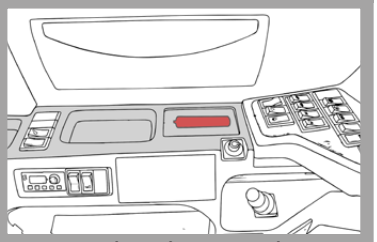
OVERT GSM (THERMAL)



COVERT GSM & GSM/LTE POSITION EXAMPLES:

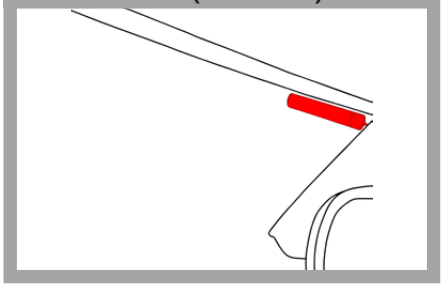


On the the a-pillar trim.

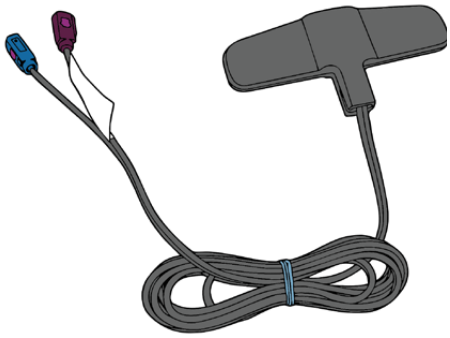


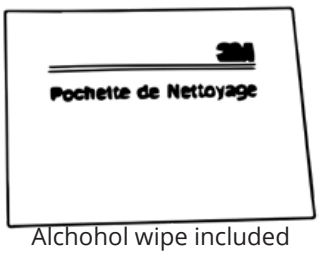
Behind a panel.

OVERT GSM (CLASSIC)



DUAL ANTENNA (GSM/GPS) (M400/3)





Alchohol wipe included

POSITION

The dual antenna (GSM/GPS) should only be installed overtly on the windscreen. In the same way as the overtly installed GSM antenna.

You must maintain 1.2 inches (3 cm) between any metal and the dual antenna.

MOUNTING

Note and raise any damage or weakness to the windscreen during the pre-check. Confirm with MICHELIN Connected Fleet and the customer if the antenna should be fitted. Adapt the sticking pressure accordingly.

The area needs to be clean before attaching the antenna, use the included alchohol wipe to clean it.

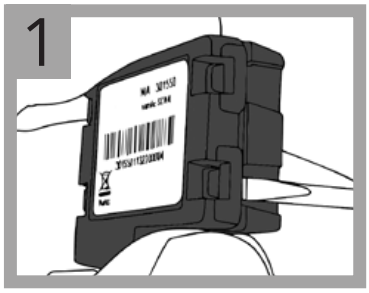
12. CAN (OPTIONAL)

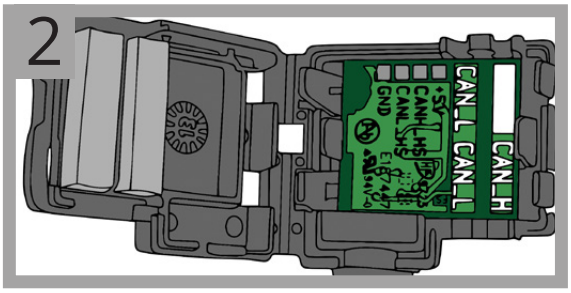
The MICHELIN Connected Fleet CAN sensors are unintrusive to the vehicle CAN and have read only functionality. This means that the CAN sensors can't input any data on to the network that might cause issues with the vehicle. Ignition **MUST** be off while connecting the CAN clips.

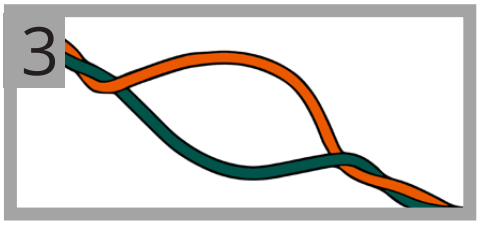
The clips come in two varieties:
- CAN, white label Sonde SCN4
- J1587, green label Sonde SCN4

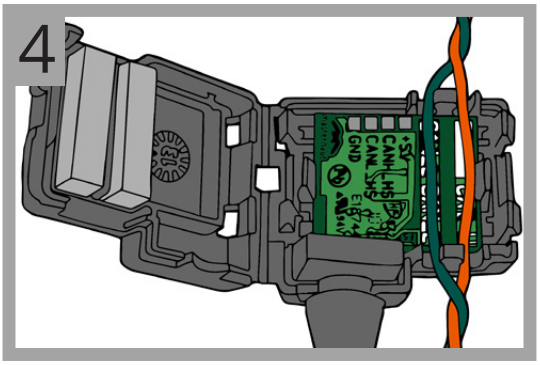
Depending on the vehicle make and model you might require one or two CAN sensors. Most vehicles only require one clip. This means that your CAN setup will look like one of these three options:
- CAN; one white labelled sensor
- CAN+CAN; two white labelled sensors
- CAN+J1587; one white labelled sensor and one green labelled sensor

NOTE: A J1587, green label, sensor will work as a replacement for a CAN, white label, sensor. However the green clip should only be used when needed.

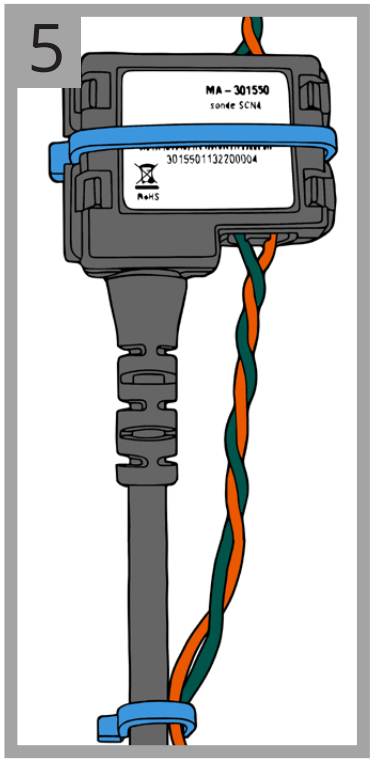








NOTE: The CANClip must be installed behind the dash trim of the vehicle and not accessible to the end user (driver).



1. Open the CAN sensor. There are four clips that you need to undo.

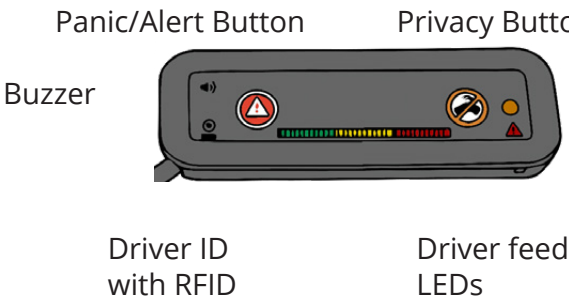
2. There are two labelled channels one for CAN High and one for CAN Low.

3. Locate the CAN wire pair, untwist them slightly.

4. Run the wires in the correct labelled channels in the sensor. They should **NOT** cross over.

5. Close the sensor, taking care to not damage or move the wires, you should hear a click. Secure the sensor with one of the included cable ties. Use the other cable tie 5-10 cm further down to relieve pressure on the wires.

13. HMI (OPTIONAL)



FEATURES

The HMI or Lightbar features the following:

- Driver Identification by RFID tags
- Panic/Alert button
- Privacy button
- Driver behaviour bar graph with 18 LED
- Buzzer, for login reminder and driver behaviour alerts

INSTALLATION

The HMI is installed by pre-applied adhesive to the back of the lightbar. The area must be clean. Use the included alcohol wipe to clean the area before attaching the HMI.

Alchohol wipe included

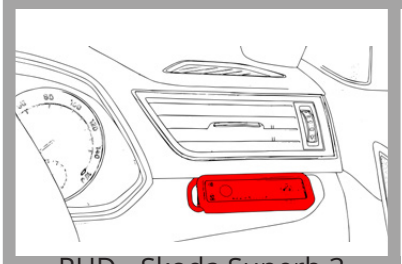
NOTE: If possible avoid making a visible notch in panels to route the HMI cable. If needed make sure that the notch is small and neatly done with proper tools. **NEVER** make a hole in the middle of a panel.

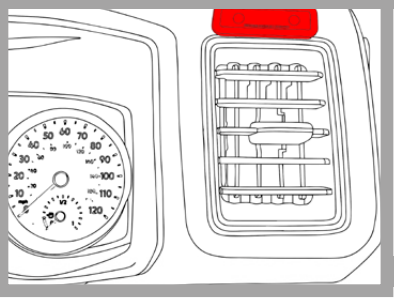
POSITION

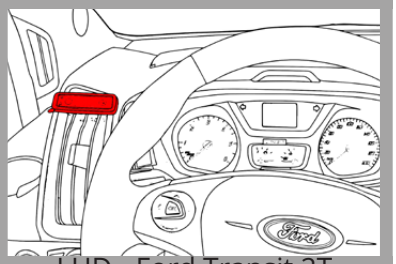
The HMI **MUST** be clearly visible from the driver's seat, to prevent the driver from taking the eyes off the road.

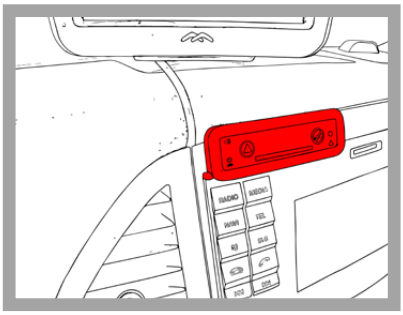
Installing the HMI on the central console may be preferable as it generally allows it to be positioned higher. If this is not possible the HMI can be installed on the dash between the steering wheel and the door.
Refer to the MICHELIN Connected Fleet vehicle guides for recommended HMI positions for the vehicle you are working on.

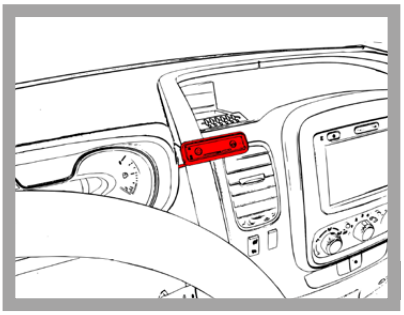
HMI POSITION EXAMPLES:

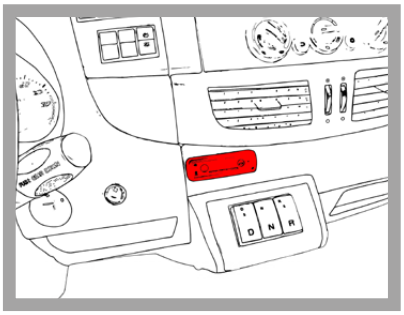

RHD - Skoda Superb 3




LHD - Ford Transit 2T







14. CABLE ROUTING

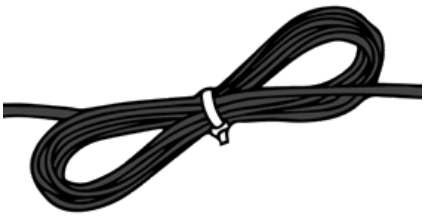
LOOMING

Any excess cabling should be loomed up tidily in a figure eight, and tied together with cable ties and tape. Excess cabling should not be looped. All MICHELIN Connected Fleet cables should be gathered up and loomed up into one loom.

ROUTING

To minimise electrical interference the MICHELIN Connected Fleet wiring should be run along the existing vehicle wiring or the metal structure of the vehicle.
The cables should be fastened with cable ties approximately every 4 inches, 10 cm.

Best Practice



Bad Practice

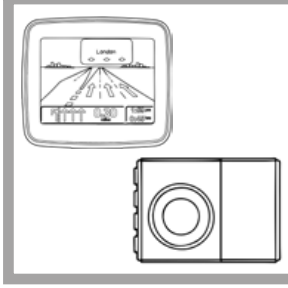
MICHELIN Connected Fleet wiring and equipment **MUST NOT** obstruct or interfere with any of the following:

Airbags

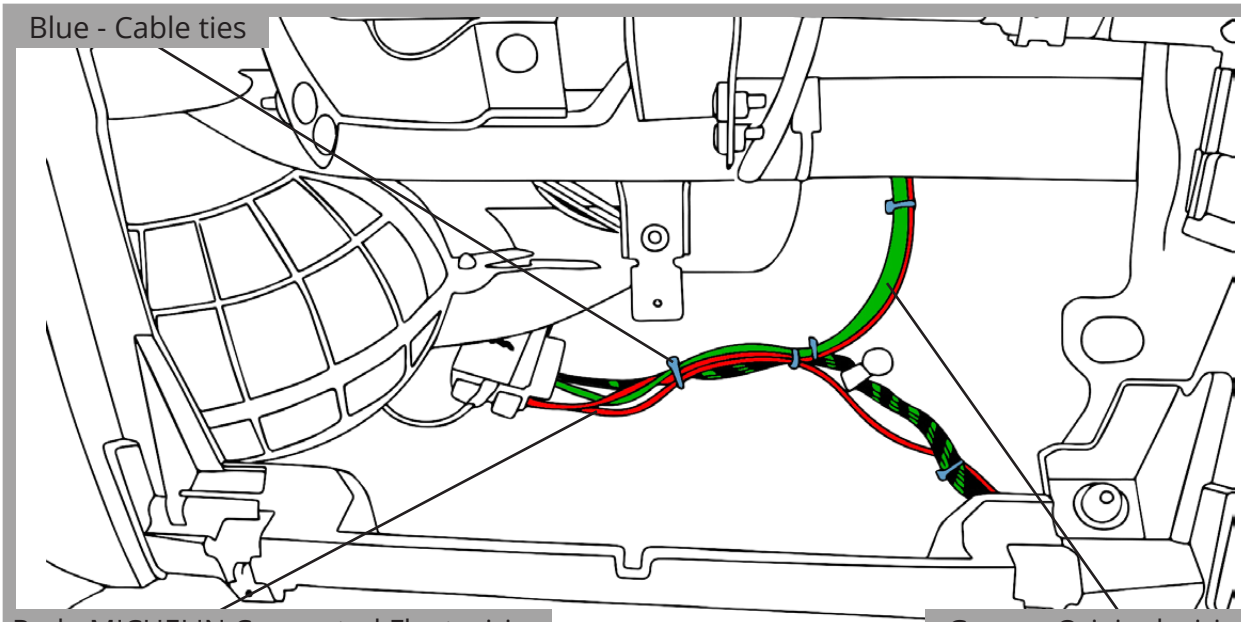
Day to day operation

Vehicle servicing

Other equipment



Blue - Cable ties



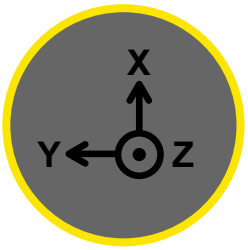
Red - MICHELIN Connected Fleet wiring

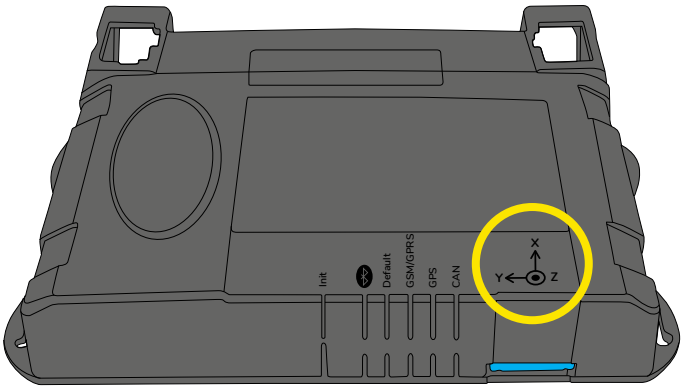
Green - Original wiring

15. UNIT MOUNTING

SECURING THE UNIT

The M4xx has an integrated 3 axes accelerometer, which is used to confirm **harsh driving events** and **register impact force in the event of a crash**.



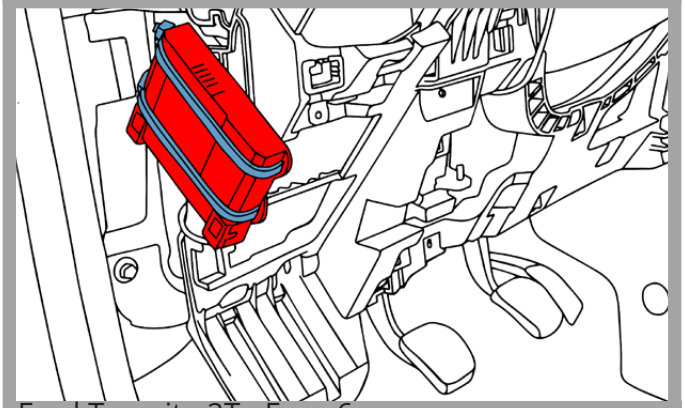


To achieve optimal performance, and for security reasons, the M4xx must be firmly secured, using cable ties. To a solid plastic or metal structure in the vehicle.

ORIENTATION

To avoid water ingress and condensation forming **DO NOT** fit the M4xx with the connectors facing upward.

MOUNTING EXAMPLES

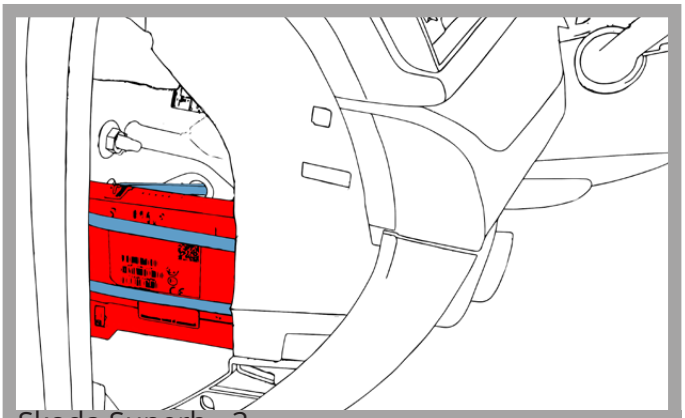


Ford Transit - 2T - Euro 6

POSITIONING

The M4xx must be mounted in a safe place, where it will not affect the operation of the vehicle. It should also not be subject to damp that might compromise the unit.

NOTE: The M4xx must be installed behind the dash trim of the vehicle and not accessible to the end user (driver).



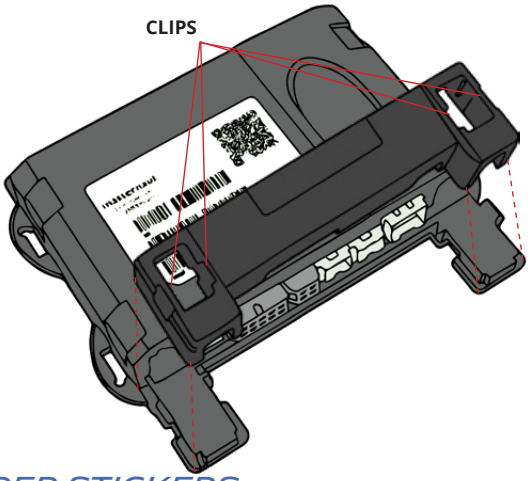
Skoda Superb - 3

M41X

Follow instructions in § “Internal antennas (M41x)” on page 13 for optimal reception from the internal antennas.

16. I/O PROTECTION AND WARRANTY/ TAMPER SEALS

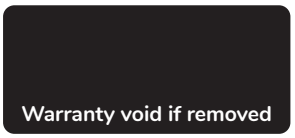
ATTACHING THE I/O PROTECTION



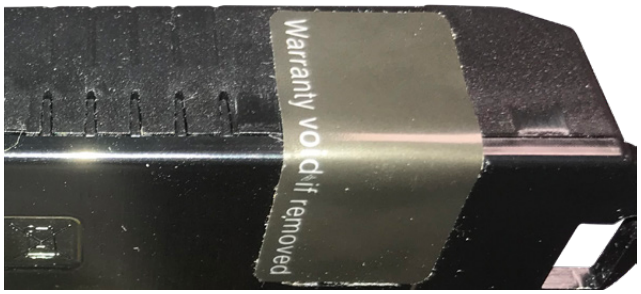
WARRANTY/TAMPER STICKERS

Warranty/Tamper stickers must be added to the M4xx **SIM card slot**, **I/O Shield**, and the **fuses** on the power loom.
There are currently two sizes of Warranty/Tamper stickers:

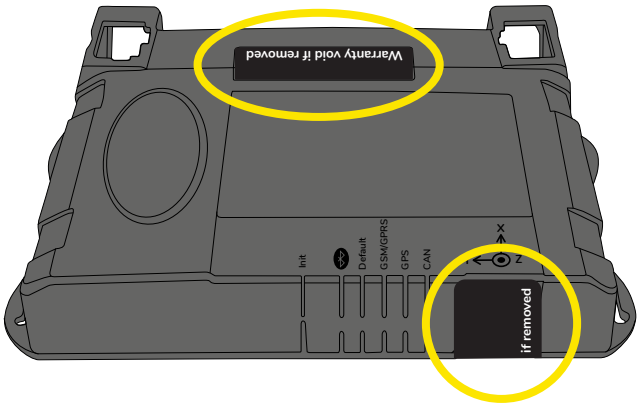
38 mm x 13 mm (I/O Shield & Fuses)



38mm x 17mm (SIM card slot)



IMPORTANT: The Warranty/Tamper sticker must be applied over the M4xx SIM card slot so it covers it entirely and prevents any liquid or dust introduction inside the enclosure and guarantees the IP rating of the product.

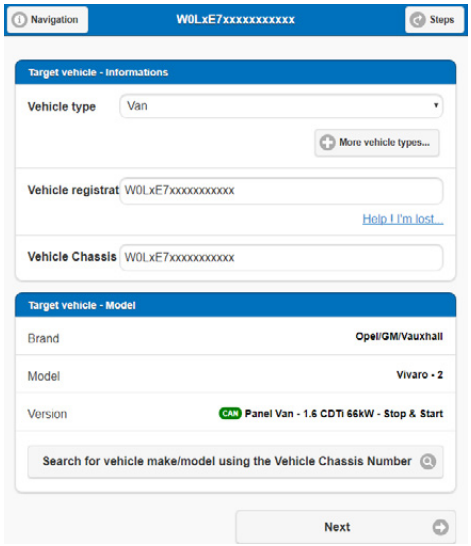


NOTE: The sticker must cover both the fuse and the fuse holder. Tie wrap and tape them together.

17. COMMISSIONING

MASTER MANAGER MOBILE

Before you connect the power to the M4xx you need to start the commissioning process. A short guide will follow, please refer to the MMO guide for a more in depth version.



VEHICLE INFORMATION

You will need the following vehicle information to complete the commission:

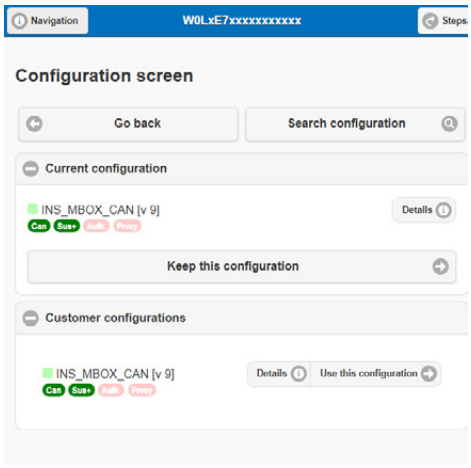
- Registration
- Chassis number
- Make/model/version

CONFIGURATION

During the commission you will have to select and send out a configuration. The configuration will activate/deactivate different features.

For example:

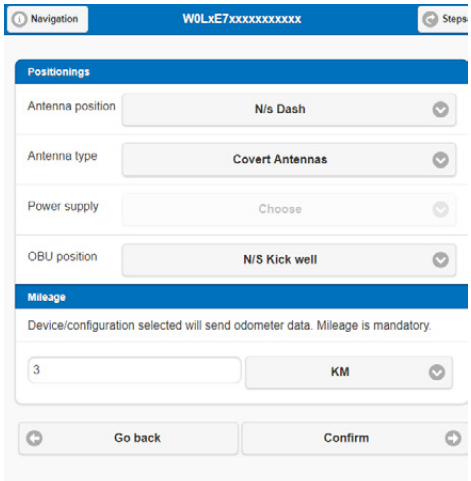
- CAN
- FEEDBACK
- PRIVACY
- ID
- PANIC



INSTALL INFORMATION

MMO will also collect information about the install that you need to fill in.

- Antenna position
- Antenna type
- OBU position
- Vehicle odometer value, at the time of the install
- Odometer unit (KM/Miles)



VALIDATION

Finally MMO will validate the functionality of the M4xx. The following will be tested:

- Satellite reception
- Ignition ON
- Ignition OFF
- Optional features

SPECIALIST SOLUTIONS

Any specialist solutions will also need to be configured and tested with MMO while commissioning your unit.

18. INPUT/OUTPUT (OPTIONAL)

INPUT COMPATIBILITY

A variety of inputs can be connected to the M4xx via the power loom. Inputs are connected to check the status of a device, for example; PTO, door switches, reverse, and beacons etc.

3 (4 if you count ignition) wires can be configured as follows:

- TOR - (On/Off control) standard digital voltage reading (0 or 1)
- CAD - Analog voltage reading
- TOR/CAD - Digital reading translated according to the thresholds up and down.

2 wires can be configured as follows:

- CAD - Analog voltage reading
- TOR/CAD - Digital reading translated according to the thresholds up and down.

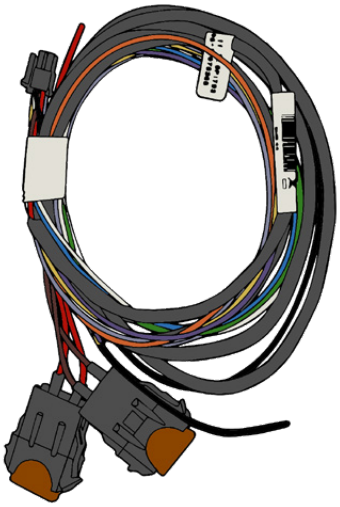
Main Loom

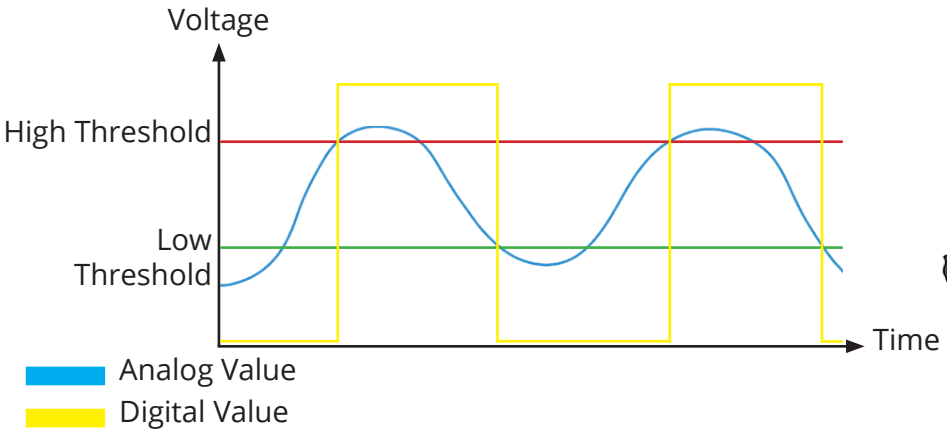
Power (+)	-	RED
Ground (-)	-	BLACK
Ignition(+)	-	BROWN

Input/Output

Input 2	-	WHITE
Input 3	-	ORANGE
Input 4	-	YELLOW
Analog 1	-	GREY
Analog 2	-	PURPLE
Output 1	-	GREEN
Output 2	-	BLUE

I/O Wire Compatibility						
	Input 1	Input 2	Input 3	Input 4	Analog 1	Analog 2
TOR	X	X	X	X		
CAD	X	X	X	X	X	X
TOR/CAD	X	X	X	X	X	X





19. TACHOFRESH (OPTIONAL)

TACHOFRESH

Tachofresh is the M4xx tachograph reading functionality. This page shows the wiring schematic, there is a full lenght guide available here, including the commissioning process.

COMPATIBILITY

Only digital Tachographs are compatible with the M4xx Tachofresh solution. It will not work with analog, paper disc, tachographs. VDO Tachographs will need to be unlocked to enable remote download from the front port, this can be done by the engineer with a VDO Unlock card (up to DTCO 2.2) or by the customer using a License code (from DTCO 3.x).

Compatible

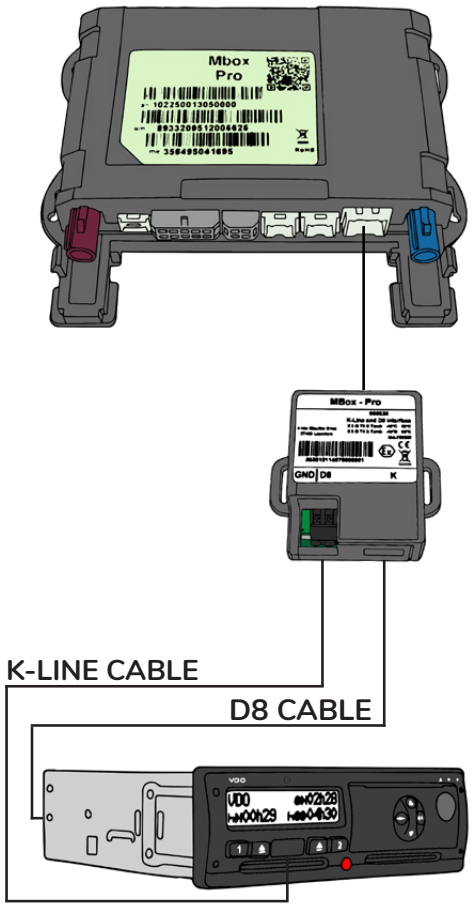
DTCO® >=1.2
for Tacho ID, and Live
DTCO® >= 1.3a
for Tacho ID, Live and Remote Download.

STONERIDGE >= R6
for Tacho ID, and Live.
STONERIDGE >=R7.3
for Tacho ID, Live and Remote Download.

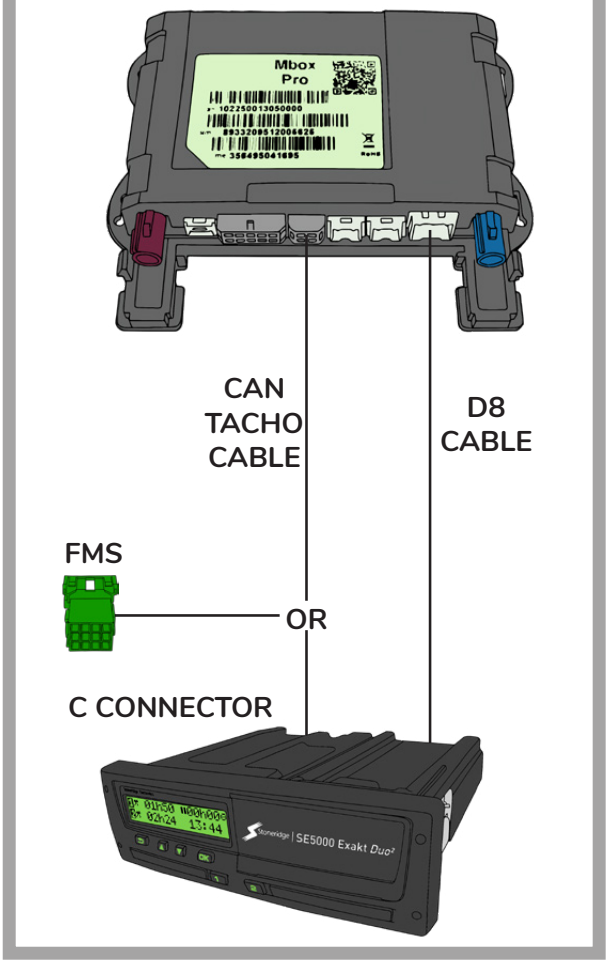
Not compatible

WIRING

FRONT CONNECTION WIRING



REAR CONNECTION WIRING



20. GRITTERS (OPTIONAL)

COMPATIBILITY

The M4xx is compatible with most gritters from the following manufacturers:

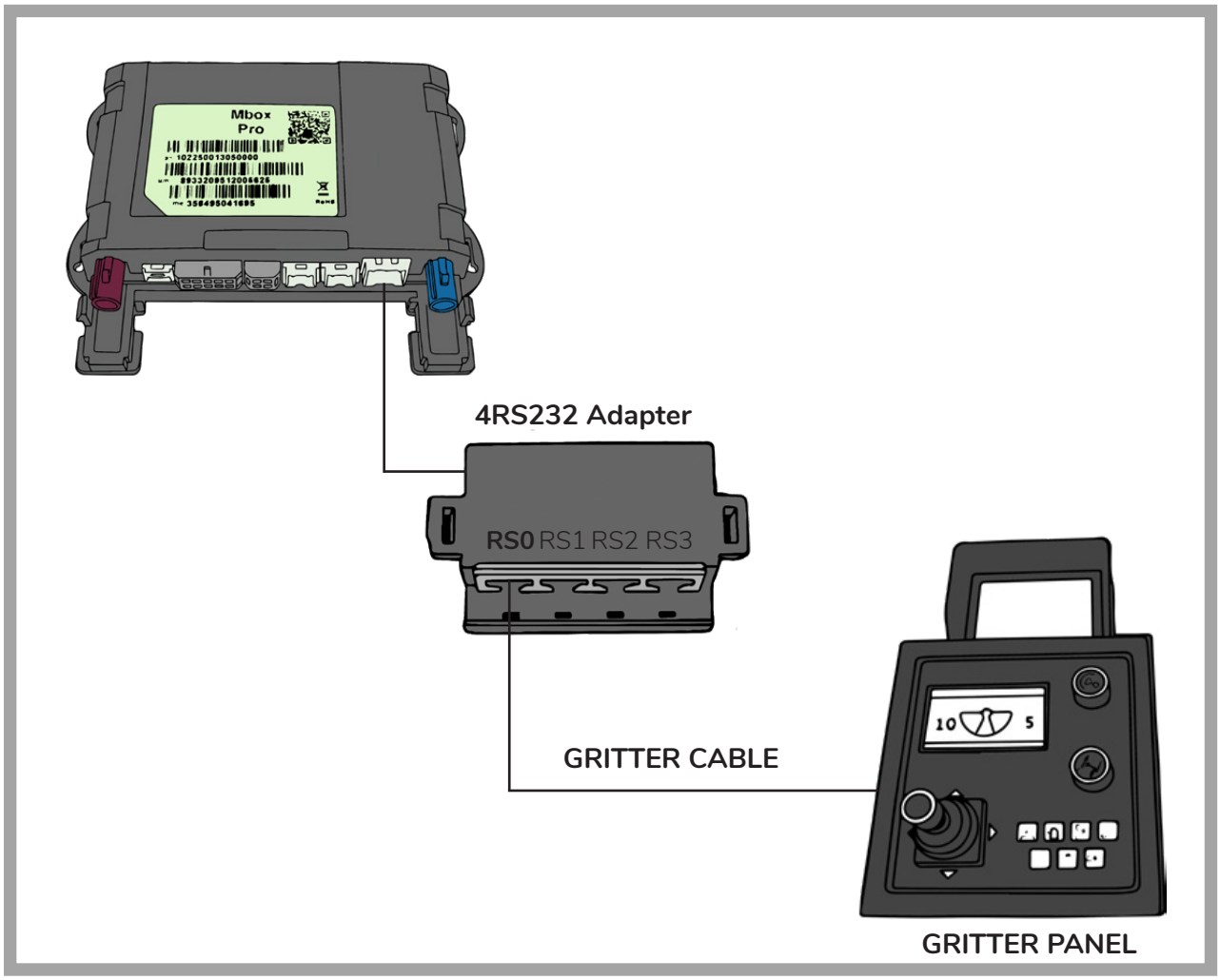
- ECON, specific guide available here.
- Schmidt, specific guide available here.
- Giletta/Buscher
- Romaquip
- Epoke

For some gritter heads the manufacturer needs to fit/adjust the output connection that the M4xx connects to. This should be done before the job is booked.

A gritter is commissioned as an input with the appropriate protocol and configuration selected, see the job instructions/specific guides.

WIRING

The wiring for the for the gritter will vary depending on the manufacturer and the model. This will only affect the cable going from the 4RS232 adapter to the gritter.



21. TEMPERATURE (OPTIONAL)

COMPATIBILITY

The M4xx is compatable with temperature readings both from MICHELIN Connected Fleet's own hardware temperature probes and from various temperature controllers and data loggers.

The firmware of the M4xx must be 1.8 or above to be compatible with Transcan.

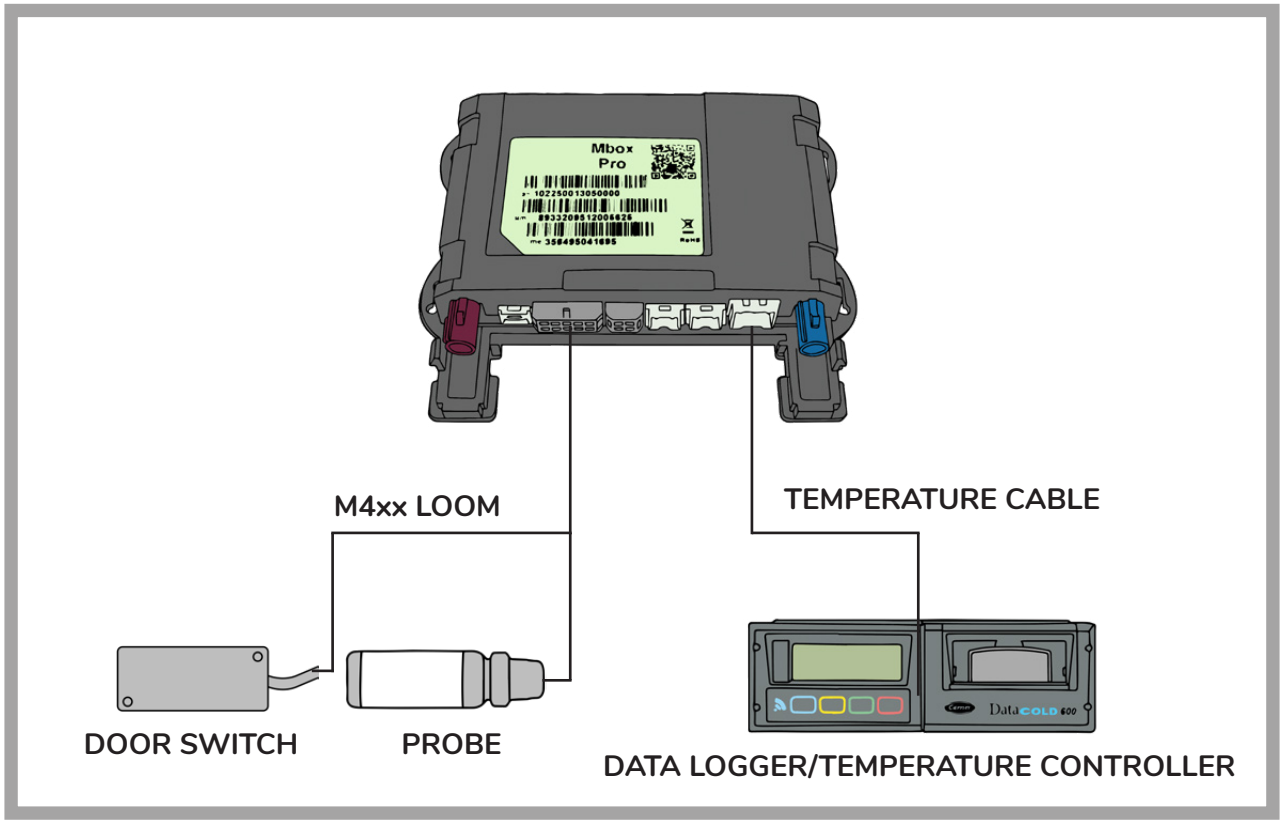
WIRED PROBES WIRING

Hardware temperature, via probes, is wired to the M4xx power loom inputs. The data loggers and temperature controllers are connected via a cable to the pro input on the M4xx, sometimes via a 4RS232 adapter depending on the specification of the install.

WIRED PROBES INSTALLATION

More information on installation guidelines are available here:

- LCV Installation
- HGV Installation
- Trailer (M430) Installation
- Datalogger Installation

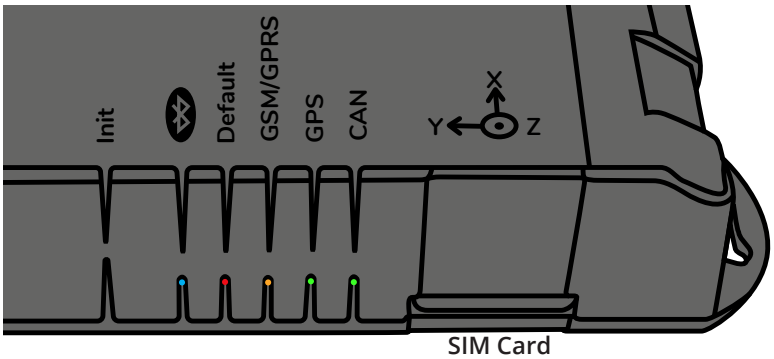


WIRELESS TEMPERATURE

You can find all the information you need about the wireless solution by clicking here.

22. DEVICE OVERVIEW

LED	LED SEQUENCE TROUBLESHOOTING				
	FIXED	FLASH	FAST FLASH	SLOW FLASH	OFF
GREEN CAN CYCLE (20 sec)	**The OBU has a CAN patch but is not receiving the correct data from the vehicle.**	**N/A**	**The OBU has not taken the CAN patch, yet.**	**The OBU has a CAN patch and is receiving the correct data from the vehicle.**	• **CAN is disabled** • **CAN is enabled but there is no CAN patch** • **Sleep Mode**
GREEN GPS CYCLE (20 sec)	**Indicates that there is an ignition feed to the unit.**	**Number of satellites** (Repeated twice)	**N/A**	**N/A**	**No satellite is detected**
GREEN CAN & GPS	• CAN enabled (GPS disabled) «» CAN cycle control • GPS enabled (CAN disabled) «» GPS cycle control (or fast flash if no configuration on OBU) • Both CAN and GPS enabled «» The two cycles are displayed one after another, continuously				
ORANGE GSM	**Booting up**	**1 flash every 3 sec:** GSM Modem enabled	**If all other LED are off:** Failure to start the GSM modem. (Power disconnected and reconnected too quickly.)	**If all other LED are off:** Failure to start the GSM modem. (Power disconnected and reconnected too quickly.)	**Sleep mode**
RED Default	**Critical Error**	**1 flash every 2 sec:** No comms on CAN 1 **2 flash every 2 sec:** No comms on CAN 2 **3 flash every 2 sec:** No GPS signal	**Forced scan process**	**If the Green CAN LED is fixed:** No comms on the configured bus (CAN 1 and/or CAN 2)	• **No default** • **Sleep mode**
BLUE Bluetooth / BLE	**The OBU is paired with a device**	**N/A**	**Data transfer**	**The OBU is not paired with a device**	• **Bluetooth/BLE off** • **Sleep mode** • **Not Present**



SIM Card

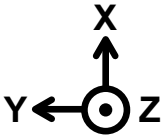
NOTE: If there is a SIM Card in the slot, and you are experiencing issues with the GSM, make sure that the card is seated correctly and the chip is clean.

M4xx unit with serial numbers starting with; **10225x**, **10226x 72011251x** has a physical SIM Card.

NOTE: M4xx with serial numbers starting; **10229x**, **10221x**, **10227x**, **10228**, and **72011250x** has internal e-sims.

UNIT ICONOGRAPHY

This icon means that the device may have Bluetooth / BLE functionality. (Not all devices will have this, see § "M4xx versions" on page 6.)



This icon means that the device has a built-in three axis accelerometer.

This icon means Direct Current Power Feed.

23. CERTIFICATION INFORMATION

Equipment intended for use in potentially explosive atmospheres.
(Directive 2014/34/EU of 26 February 2014)

MICHELIN Connected Fleet hereby declares that this product is in conformity with the mandatory requirements and other provisions of the European Union.

Electrical and electronic equipment must not be disposed of in the normal waste bin. The product must be disposed of at the end of its service life in accordance with the applicable legal regulations.

MICHELIN Connected Fleet hereby declare that this product is in conformity with the mandatory requirements and other provisions of the United Kingdom

The user of all or part of the equipment is warned that any changes or modifications not expressly approved by MICHELIN Connected Fleet may prohibit its use.

USA FCC - M405 / M404 + HMI + SCN4

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.

FCC-ID (HMI Only) – FCC ID: 2A8SB30158

CANADA ISED - M405 / M404 + HMI + SCN4

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

ISED IC (HMI Only) – IC: 29178-30158

SOUTH AFRICA ICASA - M405 / M404 + HMI + SCN4

ICASA TA-2022/1879 APPROVED

ICASA is also available for Wireless 868.3 MHz Receiver and Transmitter units (cold chain solution)

AUSTRALIA AND NEW ZEALAND RCM - M405 + HMI + SCN4

MICHELIN Connected Fleet hereby declares that this product is in conformity with the mandatory requirements and other provisions of the Australian and New Zealand ACMA regulation.

24. CONTACTS

25. VERSION HISTORY

FROM V 1.9.9 ONWARDS

V#	Date	Author	Changes
1.9.9	10/10/22	Christian Ståhle	Rebranded & FCC, ISED, and ICASA Certification added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