USER MANUAL

VIA Mobile360 M800

Reliable and ultra-compact video telematics system for driver assistance and monitoring

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Regulatory Compliance

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

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

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Notice 3

The product described in this document is designed for general use, VIA Technologies assumes no responsibility for the conflicts or damages arising from incompatibility of the product. Check compatibility issue with your local sales representatives before placing an order.

CE FC Tested To Comply With FCC Standards FOR HOME OR OFFICE USE

Safety Precautions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- All cautions and warnings on the equipment should be noted.
- Keep this equipment away from humidity.
- Put this equipment on a reliable flat surface before setting it up.
- If connecting to a vehicle power source check the voltage of the power source provides 9~36V before connecting.
- If connecting to an indoor power source, check the voltage of the power source and adjust to 110/220V before connecting the equipment to the power outlet.
- Do not place the power cord where people will step on it.
- Always unplug the power cord before inserting any add-on card or module.
- If any of the following situations arise, get the equipment checked by authorized service personnel:
  - The power cord or plug is damaged.
  - Liquid has entered into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment is faulty or you cannot get it work according to User's Manual.
  - The equipment has been dropped and damaged.
  - The equipment has an obvious sign of breakage.
- Do not leave this equipment in extreme temperatures or in a storage temperature above 70°C (158°F). The equipment may be damaged.
- Do not leave this equipment in direct sunlight.
- Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- Do not place anything over the power cord.
- Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating.

Packing List

- VIA Mobile360 M800 system
- FOV 60.8° Front ADAS AHD camera with prefixed 3M tape (3m cable)
- FOV 113° DSS AHD camera with mounting bracket, 3M tape and screw pack (3m cable)
- ADAS Display
- 9~36V J1939 and ACC/IGN power cable (3m cable)
- ACC bullet plug to Standard, Micro, Low-Profile and Mini blade fuse holder cable and fuses
- Front panel cover with rubber seal, screw pack and Allen wrench
- Wi-Fi/GPS antenna module (3m cable)
- I/O port caps for ANT-D and ANT-M antenna, DIO, CAN/COM, CAM3 and LAN ports
- 32 GB MicroSD card
- 2 x Vibration dampening strips
- 4 x M5 25mm Molly bolts

Ordering Information

Part Number	Description
M360-M800-6D12A2	Fanless mobile system with 1.2 GHz ARM Cortex-A7 dual-core SoC, 1GB DDR3 SDRAM, DIO, CAN/COM, Display-out (for ADAS display), 10/100 Mbps Ethernet, 3 AHD camera-in, Wi-Fi, Bluetooth 5.0, GPS, Micro SIM card slot, MicroSD card slot, and 9 ~ 36V DC-in with ACC/IGN

Optional Accessories

Wireless Module Options

Part Number	Description
M360-LTE3-Q1APA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for APAC region
M360-LTE3-Q2CNA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for CN region
M360-LTE3-Q1EUA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for EU region
M360-LTE3-Q1JPA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for JP region
M360-LTE3-Q1USA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for USA region
M360-LTE3-Q1TLA2	4G LTE Mobile broadband full-size miniPCIe module with antenna, thermal pad, and screw pack for TH Region

Cable Options

Part Number	Description
M360-M800-2C00A0	M12 5-pin power connector, CAN bus-to-OBD II connector, and ACC-to-bullet plug cable
M360-M800-3C00A0	M12 8-pin connector-to-female Ethernet connector cable
M360-MX00-2C00A0	M12 8-pin connector to 12V DC-out, CAN Bus, and RS-232 connector cable (supports TX/RX for RS-232)
M360-MX00-3C00A0	2M Extension cable for cameras

Sensor Options

Part Number	Description
M360-SBS-1S0030	Wireless vehicle seatbelt sensor

Development Option

Part Number	Description
M360-M800-1D00A0	Debug board, M12 12-pin connector to debug board cable, and M12 5-pin connector to power/CAN RD testing cable

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1. Product Overview

Enhance fleet efficiency and driver safety for buses, trucks and other large commercial vehicles with the VIA Mobile360 M800 Video Telematics System. Combining cutting-edge AI-powered accident prevention features with advanced driver safety system functionality, this reliable ultra-compact system has a flexible fit for easy installation in commercial vehicles of all sizes. The VIA Mobile360 M800 system supports FCW (Forward Collision Warning) and LDW (Lane Departure Warning) with its ADAS camera and detection of driver fatigue, distraction, smart phone usage and smoking with its DSS (Driver Safety System) camera.

With its CAN bus support, the system enables the collection of rich vehicle usage data such as speed, distance, idle time and fuel consumption that can be analyzed to identify opportunities for optimizing fleet efficiency and safety. Its 9-36V DC-in power supply allows in-vehicle power delivery using either a J1939 or OBD II connection.

Other features included in this lightweight small footprint device include 1GB DDR3 DRAM, 512MB SPI Flash Memory, a 6-Axis G-sensor, one MicroSD card slot and one Micro SIM card slot.

1.1 Key Features

1.1.1 High Performance in a Compact and Rugged Chassis

With a 1.2GHz dual-core ARM Cortex-A7 dual core SoC and an integrated deep learning accelerator, the VIA Mobile360 M800 system delivers high performance in an ultra-compact IP67-rated enclosure that has been designed to ensure reliable operation in the most demanding on-road conditions. The rugged and compact design of the chassis makes installations in environments with space constraints possible, while ensuring maximum reliability.

1.1.2 Multiple I/O Options

The VIA Mobile360 M800 system comes with a broad array of I/O options, including three AHD camera-in ports, one ADAS Display port, one COM/CAN bus port, one Digital I/O port, one Micro SD card slot and four antenna connectors.

1.1.3 Networking Support

The VIA Mobile360 M800 system supports GPS, Wi-Fi and BT 5.0. It is also equipped with a LAN port and can accommodate an optional 4G wireless module with its miniPCIe slot.

1.1.4 1080p Driver Assistance Cameras

The VIA Mobile360 M800 system features an IP-67-rated FOV 60.8° 1080p ADAS camera and an IP67-rated FOV 113° 1080p DSS camera that capture and transmit vibrant HD video footage to the VIA Mobile360 M800 system for processing. Video footage contains data of the prevailing road conditions and the driver.

1.1.5 Cloud Integration

The VIA Mobile360 M800 system is optimized for rapid edge-to-cloud deployments through a comprehensive suite of VIA Fleet SDK, EVK and BSP packages. The VIA Fleet AWS Cloud SDK and VIA Fleet Cloud Management Portal accelerate the integration of AWS applications and services.

Note:
A 30-day VIA Fleet Cloud Management portal demo comes included as part of the VIA Mobile360 M800 EVK (evaluation kit). The demo provides unlimited trip tracking and viewing of collision alert videos, along with 50 hours of Amazon KVS streaming.

1.1.6 Support for System-to-Server Deployments

To simplify integration with existing telematics devices installed in the vehicle, the VIA Mobile360 M800 system features an integrated Ethernet connector. The LAN port on the VIA Mobile360 M800 system can be used to stream video and data to existing telematics devices installed in the vehicle.

1.1.7 Customization

Combining advanced video, wireless and CAN bus capabilities with a rich software development and cloud integration environment, the VIA Mobile360 M800 system provides a versatile solution that can be customized to meet your specific deployment requirements. Contact us to learn more about our customization services.

1.2 Product Specifications

Processor

- 1.2 GHz ARM Cortex-A7 dual-core SoC with Deep Learning Accelerator

System Memory

- 1GB DDR3 SDRAM

Storage

- 512 MB SPI NAND Flash ROM
- 1 MicroSD Card slot

LAN

- 10/100Mbps Ethernet controller

Wireless Connectivity

- 1 GPS/Beidou module
- 1 Wi-Fi 802.11b/g/n/ac and Bluetooth 5.0 module

Sensor

- 1 6-Axis IMU

Expansion I/O

- 1 MiniPCIe slot for 4G module

Front Panel I/O

- 1 M12 Display avionic connector (for ADAS Display including microphone & speaker)
- 1 M12 DIO avionic connector (TX/RX for debugging and GPIO)
- 1 M12 CAN/COM avionic connector (supports TX/RX for RS-232)
- 1 M12 LAN avionic connector (10/100Mbps Ethernet)
- 1 Micro SIM Card slot
- 1 MicroSD Card slot (Max 512GB)
- 1 Power LED
- 1 Reset button

Back Panel I/O

- 3 M12 AHD camera avionic connectors
- 1 M12 9~36V, CAN with ACC/IGN avionic connector (supports OBDII/J1939 protocols)
- 4 Antenna connectors (4G x 2, Wi-Fi/BT, GPS)

Power Supply

- 9 ~ 36V DC-in with ACC/IGN

Operating System

- Embedded Linux

Operating Temperature

- -20°C ~ 70°C

Storage Temperature

- -30°C ~ 70°C

Operating Humidity

- 0~95% (non-condensing)

Vibration Loading During Operation

- ISO-16750-3 Test VII compliance

Shock During Operation

- ISO-16750-3 Test VII compliance

Mechanical Construction

- Aluminum alloy top cover
- Metal chassis housing

Dimensions

- 178mm(W) x 53.8mm(H) x 194.6mm(D) (7.01" x 2.12" x 7.66")

Weight

- 1.43kg (3.15lbs)

Ingress Protection Rating

- IP67

Compliance

- CE, FCC, BSMI, NCC, TELEC, SRRC, CTA, UKCA

Note:
As the operating temperature provided in the specifications is a result of testing performed in a testing chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is strongly recommended to execute a solid testing program and take all variables into consideration while building the system. Please ensure that the system is stable at the required operating temperature in terms of application.

1.3 System Layout

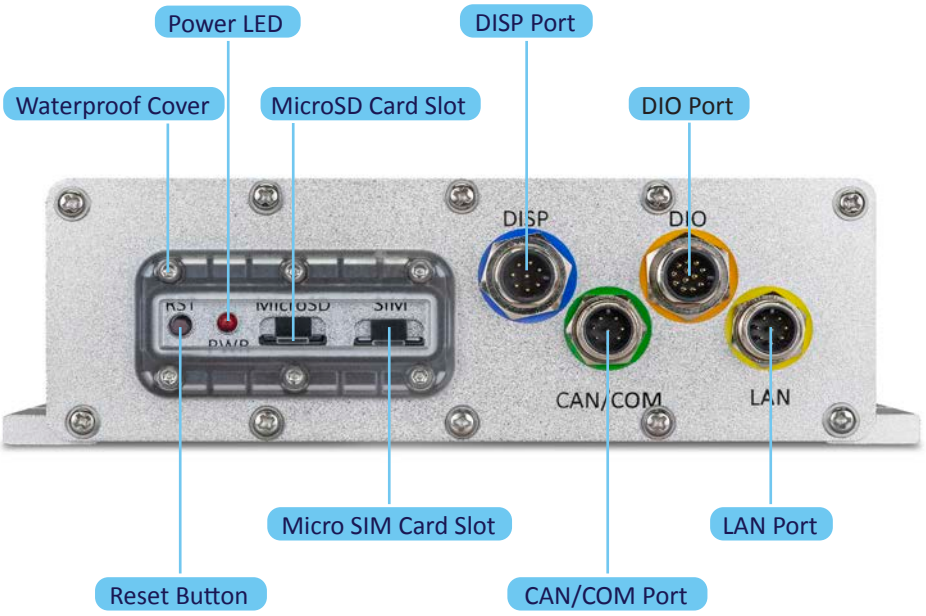

Figure 01: Front panel external I/O layout

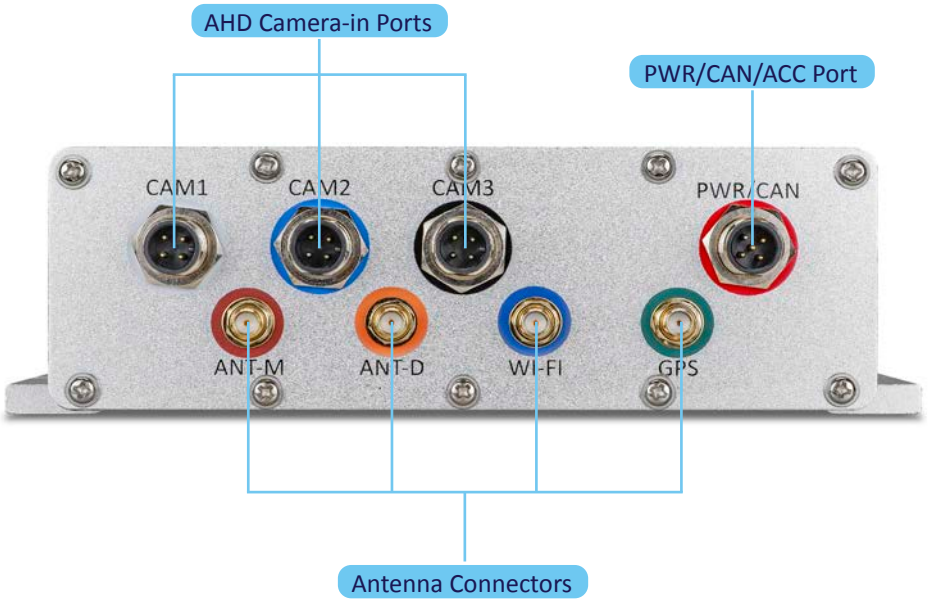

Figure 02: Rear panel external I/O layout

Figure 03: Bottom panel external I/O layout

1.4 System Dimensions

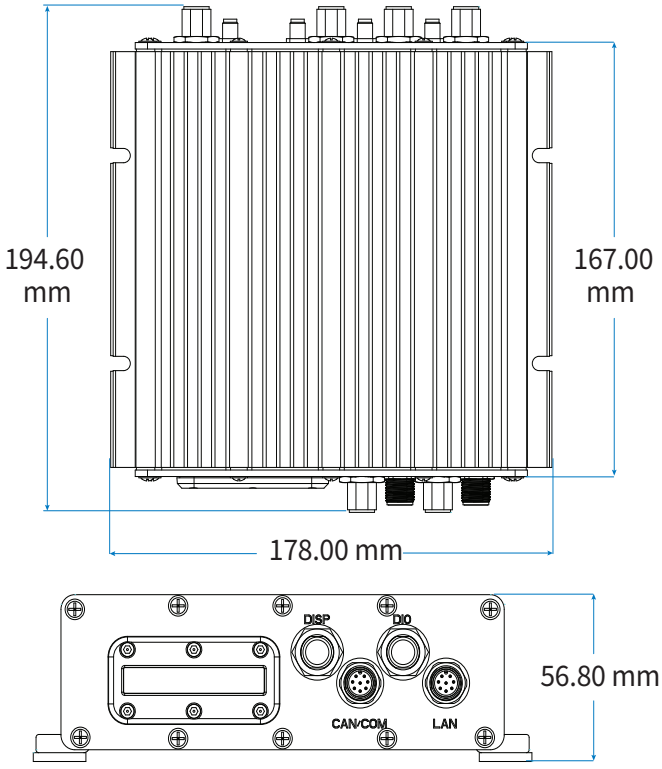

Figure 04: System dimensions

2. External I/O Pin Descriptions and Functionality

The VIA Mobile360 M800 Video Telematics System has a wide selection of I/O interfaces, including a selection of frequently used ports.

2.1 MicroSD Card Slot

The VIA Mobile360 M800 system is equipped with a MicroSD card slot located on the front panel, supporting MicroSD cards with a maximum storage capacity of 512 GB. The pin-outs of the MicroSD card slot are as shown below.

Pin	Signal
1	SD_DAT2
2	SD_DAT3
3	SD_CMD
4	VDD
5	SD_CLK
6	GND
7	SD_DAT0
8	SD_DAT1

Table 01: MicroSD card slot pin-outs

Figure 05: MicroSD card slot diagram

2.2 Micro SIM Card Slot

The VIA Mobile360 M800 system is equipped with a Micro SIM card slot located on the front panel, supporting 4G Micro SIM cards (not included). The pin-outs of the Micro SIM card slot are as shown below.

Note:
Micro SIM card usage on the VIA Mobile360 M800 requires that a 4G module be installed in the miniPCIe slot, enabling the 4G functionality. The Micro SIM card slot is designed for use with the optional 4G LTE wireless module.

Pin	Signal
1	VSIM_VCC
2	GND
3	VSIM_RST
4	VSIM_VCC
5	VSIM_CLK
6	VSIM_DATA
7	GND
8	NC

Table 02: Micro SIM card slot pin-outs

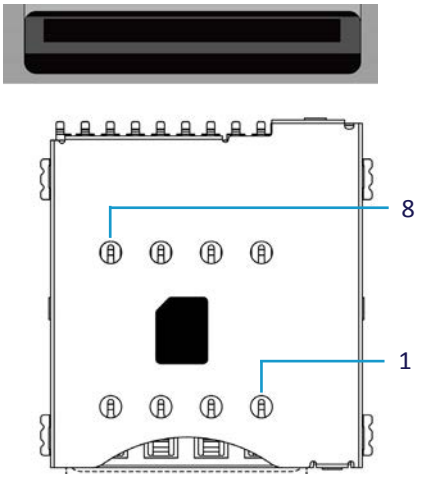

Figure 06: Micro SIM card slot diagram

2.3 DISP Port

The VIA Mobile360 M800 system is equipped with an 8-pin display (DISP) port designated in blue on the front panel, supporting the VIA Mobile360 ADAS display accessory. The pin-outs of the DISP port are as shown below.

Pin	Signal
1	12V DC-Out
2	5V DC-Out
3	GND
4	USB+ (for audio)
5	USB- (for audio)
6	GPO3
7	GPO4
8	GND

Table 03: DISP port pin-outs

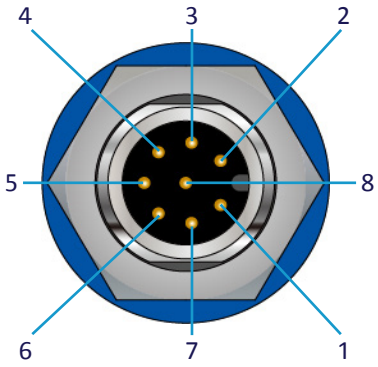

Figure 07: DISP port diagram

2.4 CAN/COM Port

The VIA Mobile360 M800 system is equipped with an 8-pin CAN/COM port designated in green on the front panel, supporting a CAN bus, RS-232 TX/RX COM connection and 12V DC-out with ground pathway. The pin-outs of the CAN/COM port are as shown below.

Pin	Signal
1	12V DC-Out
2-3	NC
4	CAN1 L
5	CAN1 H
6	RS-232 RX
7	RS-232 TX
8	GND

Table 04: CAN/COM port pin-outs

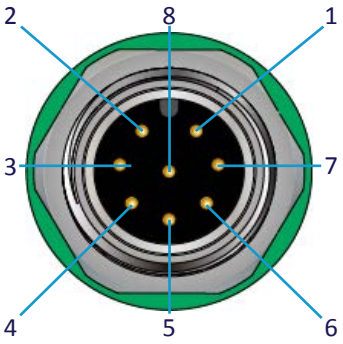

Figure 08: CAN/COM port diagram

2.5 DIO Port

The VIA Mobile360 M800 system is equipped with a 12-pin DIO (digital input-output) port designated in orange on the front panel. The DIO port provides a digital I/O communication interface for a GPIO (5-GPI and 2-GPO), a UART TX/RX connection and 12V DC-out and ground pathway. The pin-outs of the DIO port are as shown below.

Pin	Signal
1	12V DC-Out
2	GPI3
3	GPI5
4	GPI6
5	GPO1
6	GPO2
7	GND
8	GPI1
9	GPI2
10	GND
11	TX (Debug)
12	RX (Debug)

Table 05: DIO port pin-outs

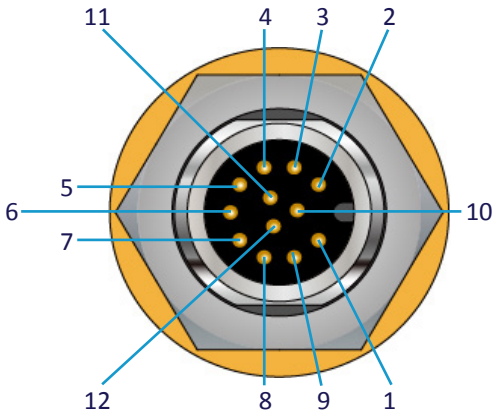

Figure 09: DIO port diagram

2.6 LAN Port

The VIA Mobile360 M800 system is equipped with an 8-pin LAN port designated in yellow on the front panel. The LAN port provides an I/O interface for network connectivity required for VIA Mobile360 M800 to Server SDK and custom implementations. The pin-outs of the LAN port are as shown below.

Pin	Signal
1	TX-P
2	TX-N
3	RX-P
4-5	75Ω to GND
6	RX-N
7-8	75Ω to GND

Table 06: LAN port pin-outs

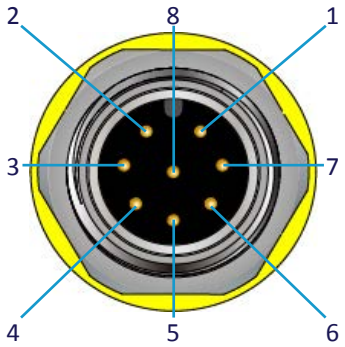

Figure 10: LAN port diagram

2.7 CAM Port

The VIA Mobile360 M800 system is equipped with three 4-pin CAM (camera) ports located on the rear panel. The camera ports are intended for use as specified below.

- CAM1 designated in white: Front ADAS camera
- CAM2 designated in blue: DSS camera
- CAM3 designated in black: Reserved

The pin-outs of the CAM port are as shown below.

Pin	Signal
1	12V DC-Out
2	AHD IN
3	NC
4	GND

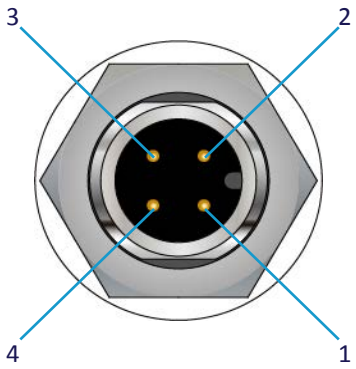

Figure 11: CAM port diagram

Table 07: CAM port pin-outs

2.8 PWR/CAN Port

The VIA Mobile360 M800 system is equipped with a 5-pin PWR/CAN port designated in red on the rear panel. The PWR/CAN port supports the J1939 or optional OBD II cable used to provide power to the VIA Mobile360 M800 system as well as the vehicle ACC signal and CAN bus information. The pin-outs of the PWR/CAN port are as shown below.

Pin	Signal
1	DC-IN
2	ACC/IGN
3	CAN0 L
4	CAN0 H
5	GND

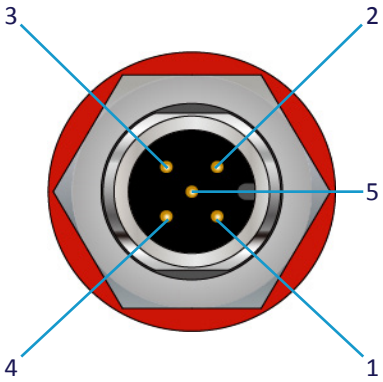

Figure 12: PWR/CAN port diagram

Table 08: PWR/CAN port pin-outs

2.9 Antenna Connectors

The VIA Mobile360 M800 system is equipped with four antenna connectors located on the rear panel. The color-coded antenna connectors are defined as below:

- ANT-M (dark red): 4G LTE MAIN antenna connector
- ANT-D (brown): 4G LTE DIV antenna connector
- Wi-Fi /BT (dark blue): Wi-Fi/Bluetooth antenna connector
- GPS (dark green): GPS antenna connector

The antenna connector port diagram is as shown below.

Figure 13: Antenna connector diagram

Note:
It is recommended to connect the provided 4G LTE antenna module to the VIA Mobile360 M800 system for optimal signal reception when using the optional 4G LTE miniPCIe module.

3. Hardware Installation

3.1 Inserting a MicroSD Card

A 32GB MicroSD card is provided in the VIA Mobile360 M800 system's standard package. MicroSD cards of storage capacities up to 512GB are supported by the VIA Mobile360 M800 system.

Note:
Absence of a MicroSD card will not affect the operation of the system, but videos will not be saved.

To insert a MicroSD card into the VIA Mobile360 M800 system follow the steps below.

1. Prepare a MicroSD card with the required amount of storage and ensure it is formatted with the exFAT file system.
2. Locate the MicroSD card slot on the front panel of the VIA Mobile360 M800 system. Ensure that the MicroSD card is facing upwards and gently push the MicroSD card in (using a fingernail or a pin) until a click sound is heard, indicating that it is fully inserted.

Note:
To remove the MicroSD card, use a fingernail or a pin to push it until a click is heard. The card can then be removed.

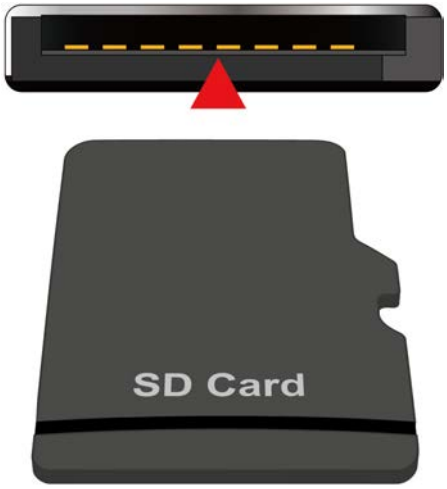

Figure 14: Inserting a MicroSD card

3.2 Securing the Waterproof Cover

The VIA Mobile360 M800 standard package includes a front panel waterproof cover with a rubber seal, screw pack and Allen wrench to seal/protect the RST button, PWR LED, MicroSD slot and the Micro SIM slot.

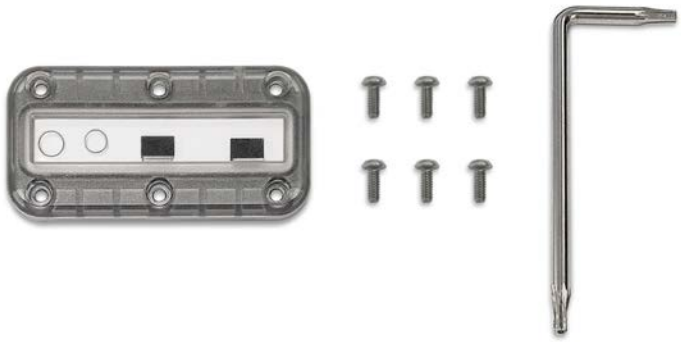

Figure 15: Front panel waterproof cover with rubber seal, screw pack and Allen wrench

To secure the waterproof cover for the MicroSD and SIM card slots located on the front panel, follow the steps below.

1. Insert the flat side of the rubber seal into the groove of the clear plastic cover.
2. Place the cover over the MicroSD and SIM card slots by aligning the screw holes and ensuring the rubber plugs fit securely into the MicroSD and Micro SIM card slots.
3. Secure the cover on the system by tightening the six screws.

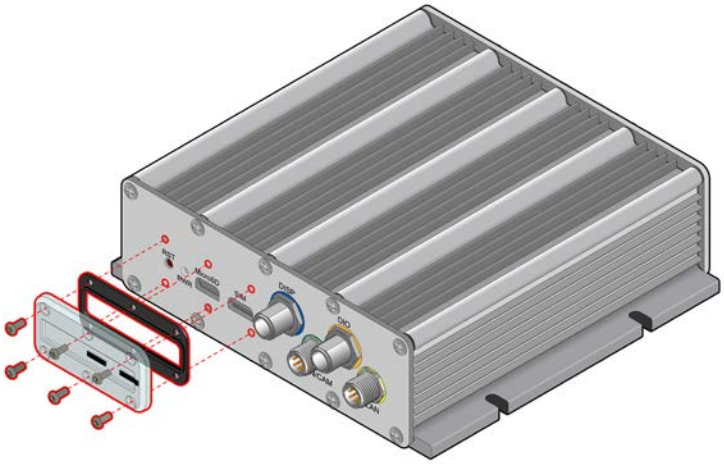

Figure 16: Securing the VIA Mobile360 M800 system's front panel

Note:
If using the optional 4G LTE Wireless Network module, see Appendix B.1, be sure to insert the Micro SIM card (not provided) into the Micro SIM card slot before attaching the waterproof cover.

3.3 Applying the Vibration Dampening Strips

Two vibration dampening strips are included in the VIA Mobile360 M800 system's standard package to help protect the system against vibration caused during operation of the target vehicle.

Figure 17: Vibration dampening strips

To attach the two vibration dampening strips, follow the instructions below.

1. Place the VIA Mobile360 M800 system top-down on a flat surface and clean the bottom of the system of any dust or debris.
2. Remove the 3M double coated tissue tape from the back of one of the vibration dampening strips and place it along the side of the system so the screw-hole cutouts align with the system.
3. Repeat the process for the other vibration dampening strip on the opposite side of the system.
4. Ensure the strips adhere tightly to the system.

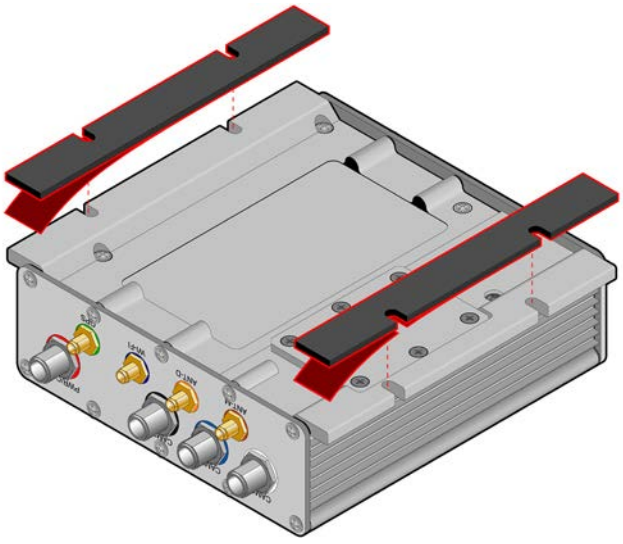

Figure 18: Vibration dampening strip installation

3.4 VIA Mobile360 M800 System Installation

Before installing the VIA Mobile360 M800 system in a target vehicle, a suitable location should be determined based on the following criteria.

- A flat surface with enough spacing to accommodate the system chassis and room for attaching the cables. The recommended spacing is 218mm(W) x 70mm(H) x 327mm(D) (7.87" x 2.76" x 13.78")
- The location should allow for airflow around the system to ensure proper operation.
- The target surface should support drilling into to support the included four M5*25mm Molly bolts or provide proper adhesion for double-sided 3M VHB tape GPH-160GF (not included) to secure the system such that it will not fall or shift due to vibration or sudden stops or starts, under normal operating conditions.
- The system is placed within the vehicle such that the accessories can be routed safely back to the system from their point of installation.

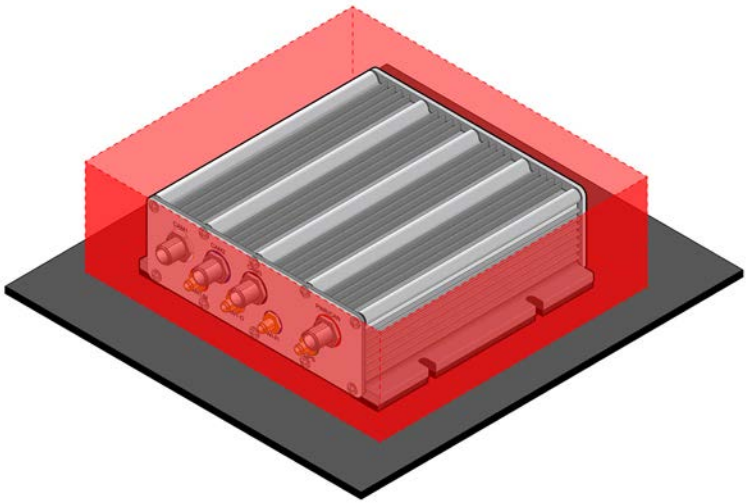

Figure 19: Recommended installation space requirements

3.5 Wi-Fi/BT/GPS Antenna Installation

The VIA Mobile360 M800 system Wi-Fi/BT/GPS antenna module includes two extension cables to allow proper placement within the vehicle.

Figure 20: Wi-Fi/BT/GPS antenna module and extension cables

To install the Wi-Fi/BT/GPS antenna module in the target vehicle, follow the steps below.

1. Find a suitable location with a flat surface in the target vehicle on which the Wi-Fi/BT/GPS antenna module can be secured to.

Note:
It is recommended to place it high up in the vehicle near a window for optimal GPS reception.

2. Clean the target surface of any dirt and debris with alcohol.
3. Remove the protective 3M tape sticker under the Wi-Fi/BT/GPS antenna module and attach it on the target surface. Press firmly to ensure proper adhesion.

Note:
The use of "3M™ VHB™ Tape Universal Primer UV" is recommended to increase the initial bonding strength.

Figure 21: 3M tape protective cover removal

4. Connect the extension cables to the corresponding color-coded cables of the Wi-Fi/BT/GPS antenna module.

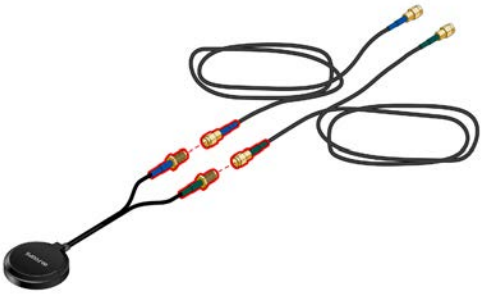

Figure 22: Connecting extension cables to the Wi-Fi/BT/GPS antenna module

5. Connect the Wi-Fi/BT/GPS antenna extension cables to the corresponding color-coded antenna connectors on the rear panel of the VIA Mobile360 M800 system.

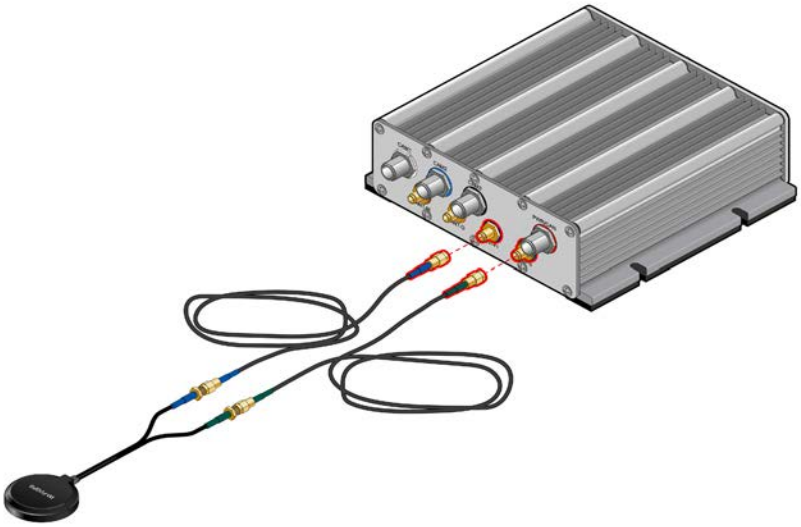

Figure 23: Connecting the Wi-Fi/BT/GPS antenna module

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

3.6 Front ADAS Camera Installation

The Front ADAS camera is provided in a labeled box as part of the VIA Mobile360 M800 package, and comes prefixed with a 3M sticker. An L-wrench is also included for adjusting and securing the camera angle.

Figure 24: Front ADAS camera

Follow the steps below to install the Front ADAS camera in the target vehicle.

1. Identify a suitable location for the Front ADAS camera as close as possible to the center of the windshield, which will not affect the driver's field of vision.
2. Remove all dirt and debris off the target surface by wiping it with alcohol. Peel off the 3M tape's protective sticker and carefully place the camera on the target surface. Press firmly to ensure complete adhesion.

Note:
The use of "3M™ VHB™ Tape Universal Primer UV" is recommended to increase the initial bonding strength.

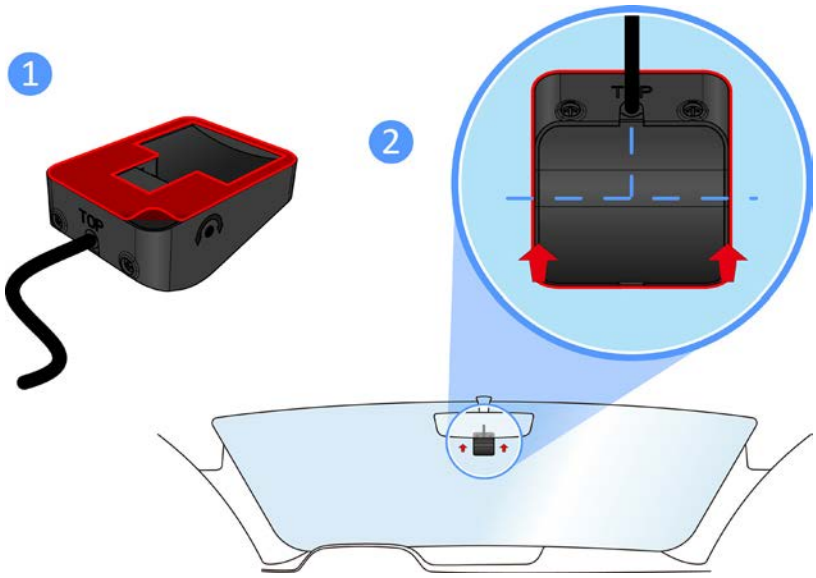

Figure 25: Installing the Front ADAS camera

3. Route the ADAS camera's cable back to the VIA Mobile360 M800 system and connect it to the CAM port (CAM1) designated in white located on the rear panel.

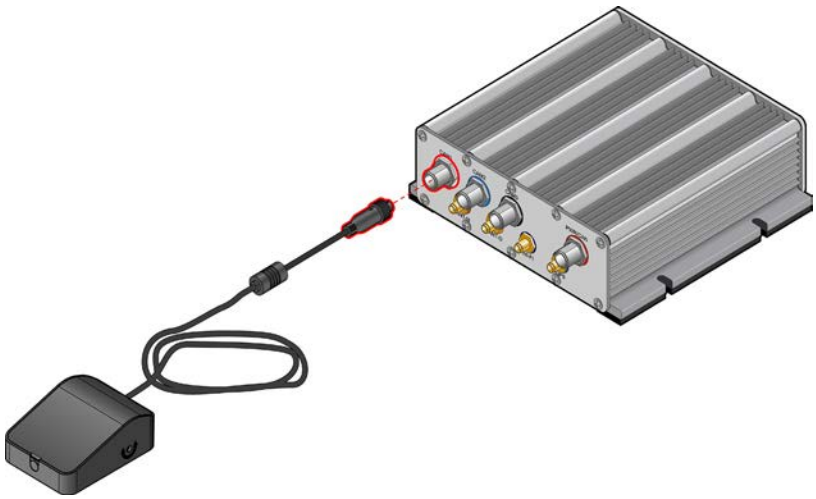

Figure 26: Connecting the ADAS camera

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

4. The Front ADAS camera's angle can be adjusted as follows:

   Step 1

   Insert the short end of the provided L-wrench into the screw in the left panel, then gently turn the L-wrench to loosen the screw enough for allowing adjustment of the camera angle.

   Step 2

   Next, insert the long end of the L-wrench into the hole on the right panel, and gently turn the L-wrench clockwise or counter-clockwise to adjust the camera angle. The camera must be parallel to the ground, and as close to the windshield as possible.

   Step 3

   Finally, insert the short end of the L-wrench into the screw in the left panel and gently turn the L-wrench to tighten the screw. The camera angle is now secured.

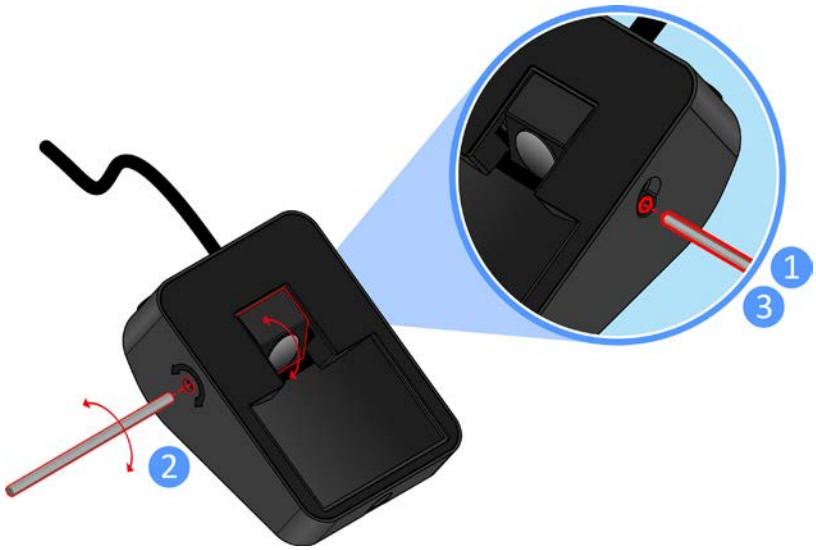

Figure 27: Adjusting the Front ADAS camera angle

3.7 DSS Camera Installation

The DSS camera is provided in a labeled box as part of the VIA Mobile360 M800 package, and comes pre-assembled with a mounting bracket. A piece of double-sided 3M tape, and a screw pack containing an L-wrench and four M5*10mm screws, are also included for more secure installation needs.

Figure 28: DSS camera with 3M tape and screw pack

To install the DSS camera in the target vehicle, follow the steps below.

1. Find a suitable location with a flat surface in the target vehicle on which the DSS camera can be installed such that a full-frontal view of the driver's face can be obtained (See the VIA Mobile360 M800 Quick Start Guide for more detailed installation requirements). If the drilling option will be used, ensure that there is sufficient depth below the target surface for insertion of the provided four M5*10mm screws.
2. Prepare the target surface for installation and install the camera.
   - If the 3M tape option will be used, remove all dirt and debris off the target surface by wiping it with alcohol. Remove the 3M tape's protective sticker and carefully place the camera mount assembly on the target surface. Press firmly to ensure complete adhesion.

Note:
The use of "3M™ VHB™ Tape Universal Primer UV" is recommended to increase the initial bonding strength.

Figure 29: Installing the DSS camera with the 3M tape option

   - If the drilling option will be used, place the rectangular plate of the DSS camera mount on the target surface and mark the positions of the screw-holes on the plate. Drill holes into the marked positions. Align the screw-holes on the plate holes to the drilled holes on the target surface. Fix firmly in place with the four M5*10mm screws.

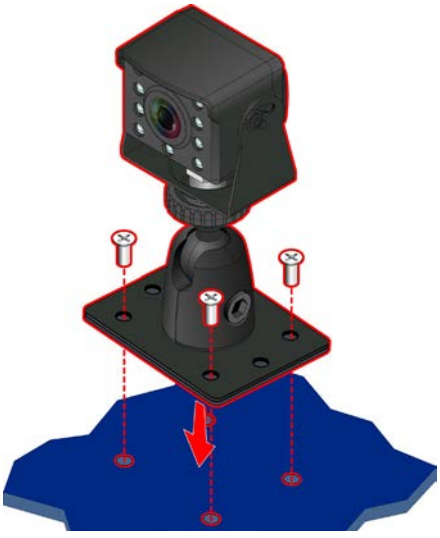

Figure 30: Installing the DSS camera on the target surface with the drilling option

3. Route the DSS camera's cable back to the VIA Mobile360 M800 system and connect it to the CAM port (CAM2) designated in blue on the rear panel.

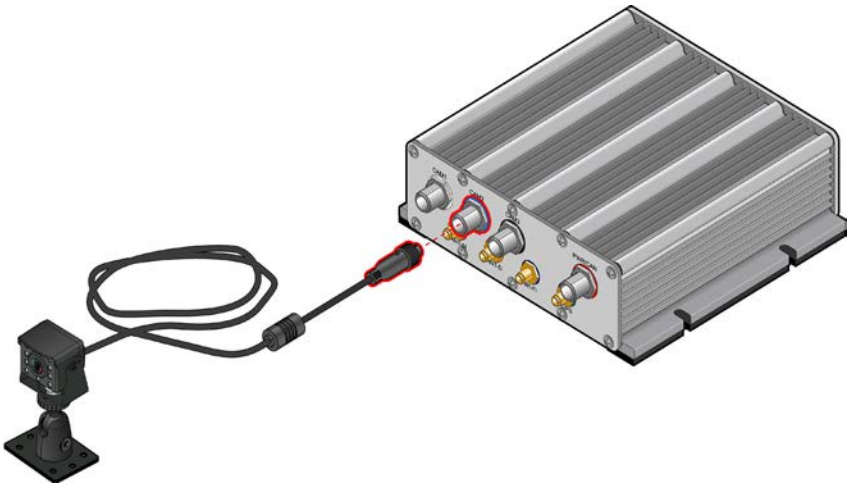

Figure 31: Connecting the DSS camera

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

4. The DSS camera's position can be adjusted as follows.
   - Loosen the camera bracket's screws with a Phillips head screwdriver, and then adjust the camera module up or down to the desired position. Once positioned correctly, tighten the camera bracket's screws with a Phillips head screwdriver.
   - Insert the provided L-wrench into the ball-head screw and turn counter-clockwise to loosen it, then rotate/swivel the camera and the bottom plate to the desired positions. Once positioned correctly, turn the ball-head screw clockwise to tighten it.

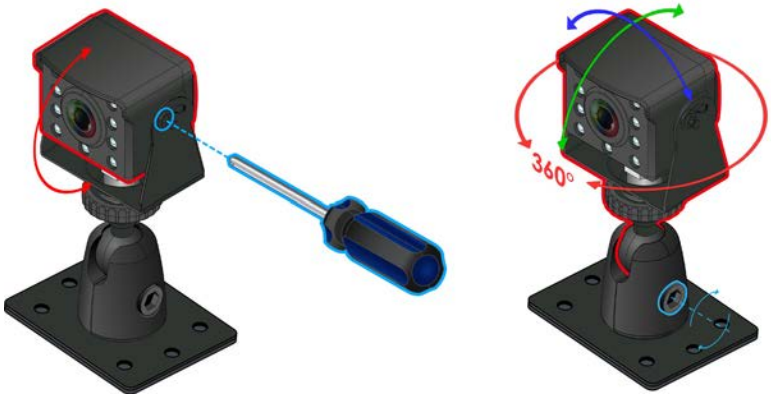

Figure 32: Adjusting the DSS camera

3.8 ADAS Display

The ADAS Display accessory provides audio and visual alerts for the VIA Mobile360 M800 AI alerts as well as echo cancelling microphones and a multi-function button for creating driver alerts and requesting 2-way calls. The device comes pre-assembled with a mounting bracket that has a piece of double-sided 3M tape already attached to it.

Figure 33: The ADAS Display accessory

The ADAS Display has an LED panel, an echo-canceling microphone array, a 2W speaker and a driver alert/two-way calling button. The driver alert/two-way call button is for recording driver alert videos from both cameras (10 seconds before and X seconds after) when pushed with a short press. The button can also create an alert message when pressed for more than 3 seconds to request a 2-way call.

Figure 34: ADAS Display front/rear panel I/O

3.8.1 LED Panel

The ADAS Display LED panel also provides alert indicators for forward collision and lane departure warnings (FCW and LDW) as well as system status indicators, as shown in the figure below.

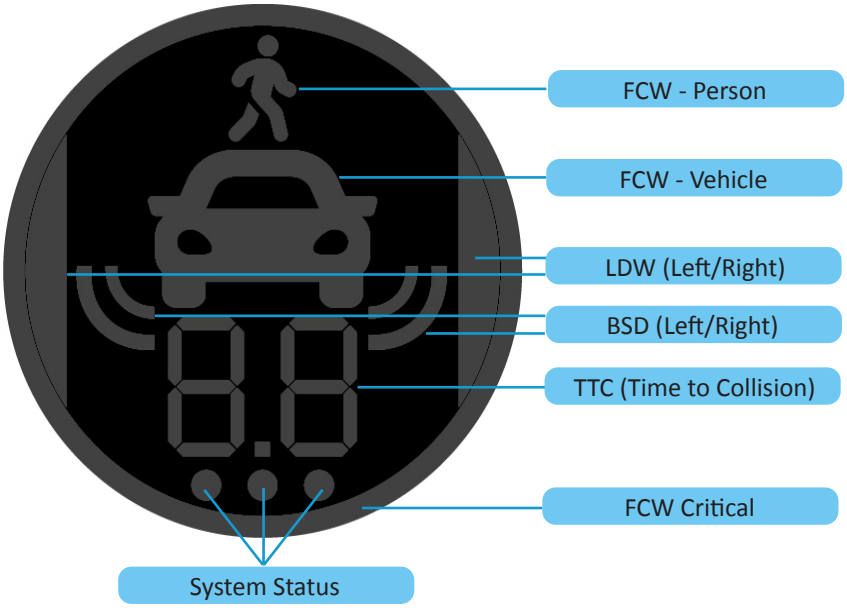

Figure 35: ADAS Display's visual alert icons

Note:
Blind Spot Detection (BSD) alerts are not available with the standard VIA Mobile360 M800 system configuration.

Forward Collision Warning Visual Alerts

FCW - Detected

FCW - Warning

FCW - Critical

- FCW - Detected - Solid green LED (vehicle or person) and TTC displayed when TTC is less than or equal to 2.7 seconds.
- FCW - Warning - Solid red LED (vehicle or person) and the TTC is within the defined FCW warning period.
- FCW - Critical - Solid red LED (vehicle or person) with outer red circle flashing at 3Hz and the TTC is less than the minimum FCW warning time.

Lane Departure Warning Visual Alerts

LDW - Left

LDW - Right

- LDW - Detected - Solid white LDW LED when LDW (left/right) detected.

System Status LEDs

The VIA Mobile360 M800 system's ADAS Display accessory has three LED indicators located on the front panel to display system status for various situations.

Device Boot Up

Recording

SD Card Error

Hotspot Startup

Recording Error

Mic Error

Mobile Network Startup

FW Upgrading

Sensor/GPS Error

MCU Upgrading

Figure 36: System status LEDs

- Device Boot Up - All three LEDs flashing at 1Hz
- Recording - Solid green LED
- SD Error - Red and yellow LEDs flashing at 1Hz
- Hotspot Startup - Yellow LED flashing at 1Hz and solid green LED
- Recording Error - Solid red and yellow LEDs
- Mic Error - Red LED flashing at 1Hz and solid green LED
- Mobile Network Startup - Red LED flashing at 10Hz and solid green LED
- Firmware Upgrading - Red LED flashing at 2Hz and solid green LED
- Sensor/GPS Error - Red and yellow LEDs flashing at 1Hz and solid green LED
- MCU Upgrading - Red LED flashing at 2Hz and solid green LED

3.8.2 Installing the ADAS Display

Follow the steps below to install the ADAS Display in the target vehicle.

1. Identify a suitable location near the driver's seat that does not affect the driver's field of vision.
2. Remove all dirt and debris off the target surface by wiping it with alcohol. Remove the 3M tape's protective sticker under the mounting bracket and carefully place the ADAS Display mount assembly on the target surface. Press firmly to ensure complete adhesion.
3. Route the cable back to the VIA Mobile360 M800 system and connect the ADAS Display to the DISP port designated in blue on the front panel.

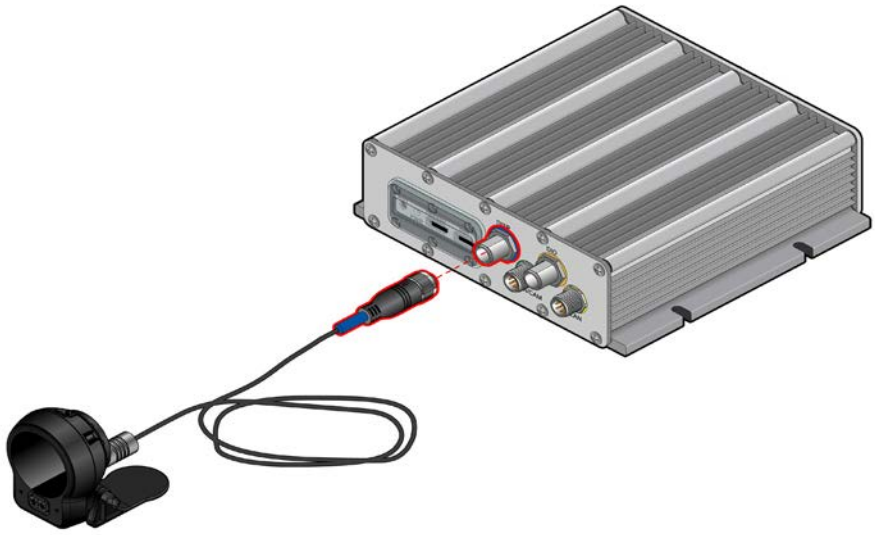

Figure 37: Connecting the ADAS Display to the VIA Mobile360 M800 system

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

4. The ADAS display position can be adjusted as follows.
   - To rotate the angle of the mounting plate, press the "unlock" button on the top of the device and turn the mounting bracket left/right. Once positioned correctly, release the "unlock" button and adjust the mounting plate until it clicks securely in place.
   - Turn the thumbscrew counter-clockwise to loosen it, then rotate the mounting plate to the desired angle. Once positioned correctly, turn the thumbscrew clockwise to tighten it.

Figure 38: Adjusting the ADAS display

3.9 Installing the J1939 Power Cable

The J1939 power cable is used to provide power, standard CAN bus data and the vehicle's ACC signal to the VIA Mobile360 M800 system. The diagram below shows the connections required.

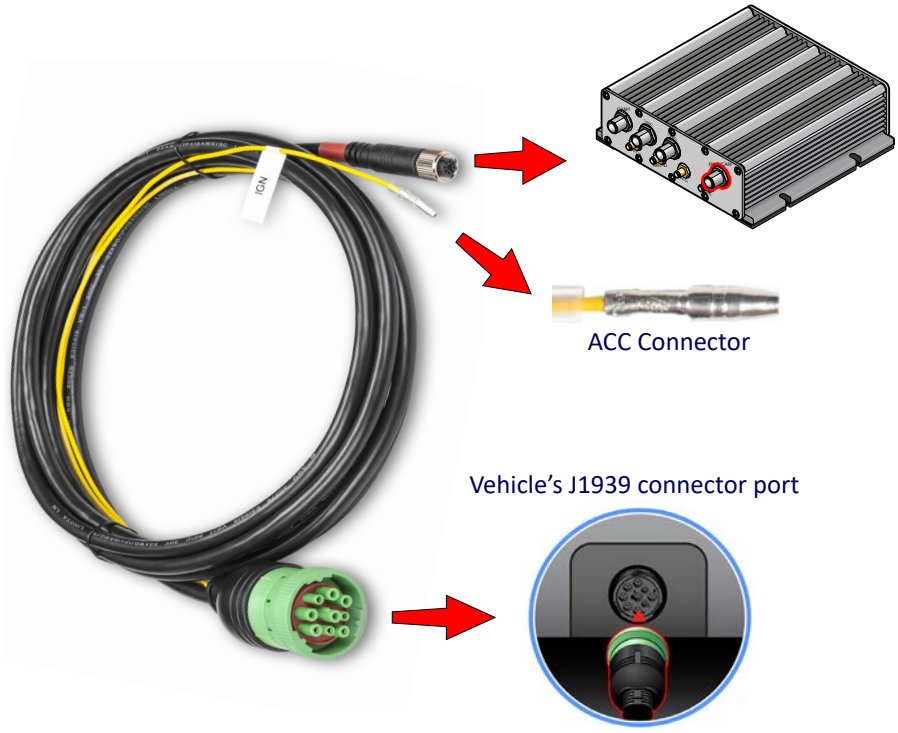

Figure 39: J1939 power cable connections

Note:
Before connecting power supply to the VIA Mobile360 M800 system, check and confirm that the target vehicle can supply the required system power ranging from 9 ~36V DC. After confirming, follow the steps below.

Make sure the target vehicle is powered OFF and follow the instructions below to connect the J1939 cable.

1. Check the target vehicle's user manual to find the location of the fuse box and the J1939 port in the vehicle.

2. Locate the ACC fuse within the fuse box and determine the correct fuse size required.

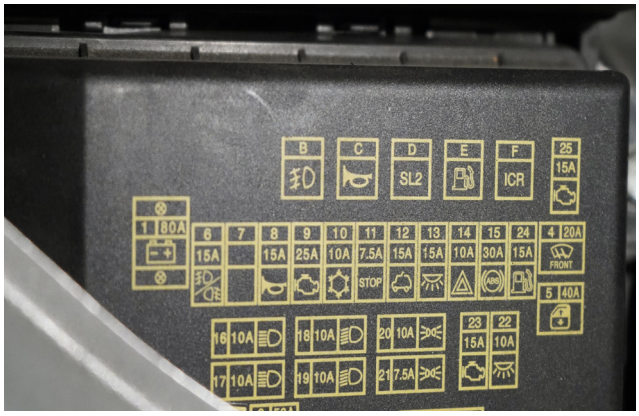

Figure 40: Sample fuse box cover

3. Pull out the ACC fuse from the target vehicle's fuse box.

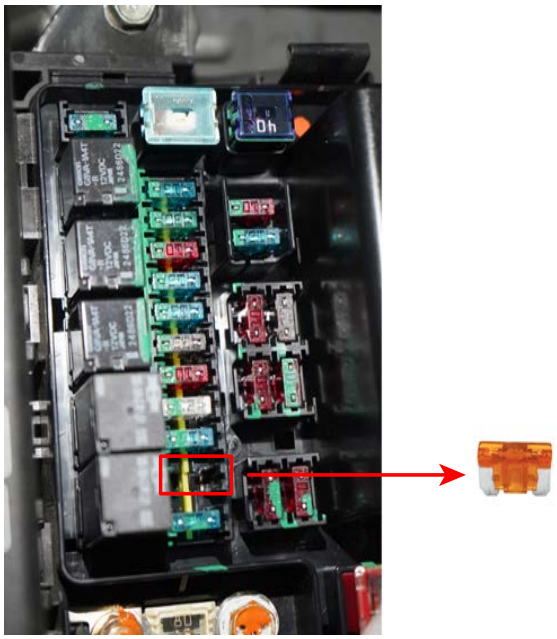

Figure 41: Extracting the ACC fuse from the fuse box

4. Select a compatible yellow blade fuse holder cable from the blade fuse holder cable accessory pack provided in the VIA Mobile360 M800 system's standard package. Plug in the removed ACC fuse into the empty slot in the compatible blade fuse holder cable.

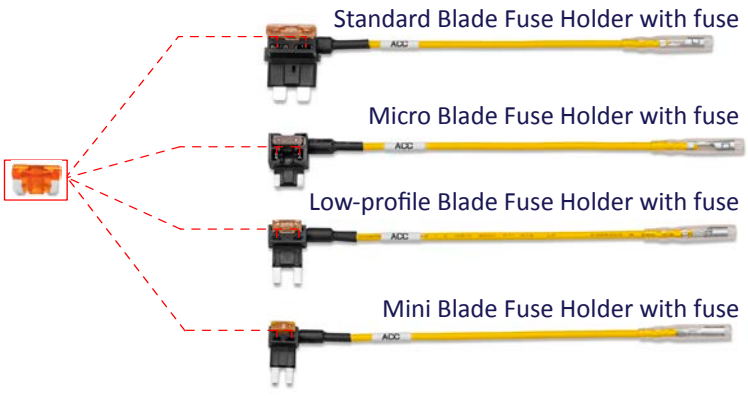

Figure 42: Installing the ACC fuses on the blade fuse holder cable

5. Plug in the blade fuse holder cable into the ACC fuse slot in the vehicle's fuse box.

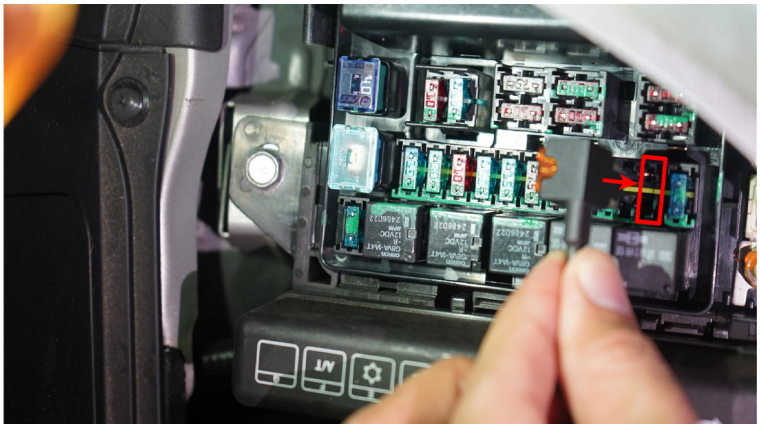

Figure 43: Connecting the Blade Fuse Holder cable to the fuse box

6. Connect the other end of the blade fuse holder cable to the yellow ACC/IGN wire of the J1939 cable as shown in the diagram below. Make sure to slide the plastic protective cover over the connection points to protect the connection.

Figure 44: Connecting the blade fuse holder cable to the J1939 power cable

7. Plug in the J1939 cable to the J1939 connector port in the target vehicle.

	J1939 Connector	Cable AWG
Signal Name	Pin No.	UL Type and Color
B+	B	18AWG RED
GND	A	18AWG BLACK
ACC-IN	-	18AWG YELLOW Bullet-Terminal
CAN_L	D	22AWG WHITE
CAN_H	C	22AWG GREEN
-	E, F, G, H and J	Not used

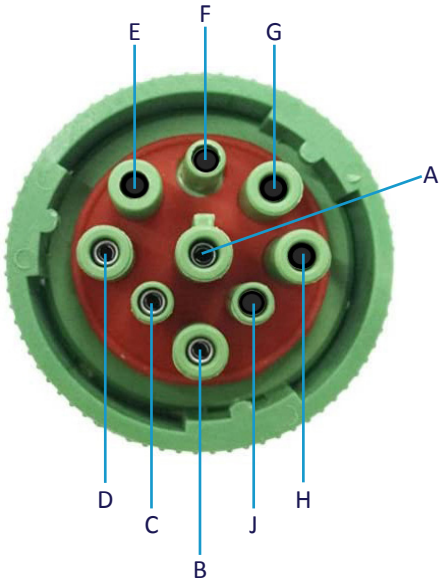

Figure 45: J1939 cable pin-out diagram

Table 09: J1939 cable's pin-outs (Cable UL 20276)

Figure 46: Plugging in the J1939 cable to the vehicle's J1939 connector port

8. Route the cable back to the VIA Mobile360 M800 system and connect it to the "PWR/CAN" port designated in red on the rear panel.

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

3.10 Placing the Caps on Unused I/O Ports

The VIA Mobile360 M800 system comes with additional I/O ports for connecting optional accessories. It is recommended to cover the unused ports with the provided caps to ensure the IP67 rating. To cover the unused ports, follow the instructions below.

1. On the front I/O panel of the VIA Mobile360 M800 system, the DIO, CAN/COM and LAN ports are not required for the standard setup.
   - Use three of the provided M12 caps to cover the DIO, CAN/COM and LAN ports. Ensure the caps are fitted securely.
2. On the rear I/O panel of the VIA Mobile360 M800 system, the CAM3, ANT-M (4G main) and ANT-D (4G diversity) ports are not required for the standard setup.
   - Use one of the provided M12 caps to cover the CAM3 port. Ensure the cap is fitted securely.
   - Use the two provided SMA caps to cover the ANT-M and ANT-D ports. Ensure that the caps are fitted securely.

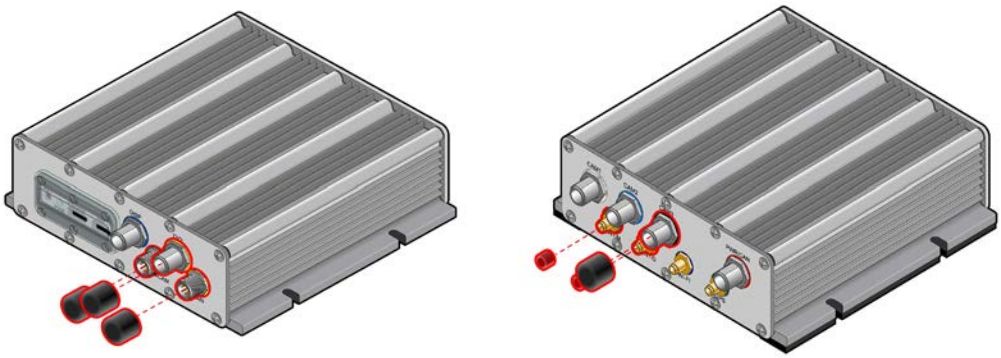

Figure 47: Placing caps on unused I/O ports

3.11 Powering System ON/OFF

After the VIA Mobile360 M800 system is fully installed, power ON the target vehicle and the system will power ON too. See the table below for the description of the system status based on the PWR system power LED indicator state located on the front I/O panel.

Note:
It is recommended to keep the system on for at least 10 minutes upon the first boot to ensure the system fully charges.

LED	Flash Frequency	Description
Flash Frequency	Solid ON	System boot complete
	OFF	System is powered OFF
	4 flashes per second	Firmware upgrading
	1 flash per second	System powering ON/powering OFF

Table 10: PWR LED Status

After the target vehicle is turned off, the cameras will be turned off immediately, followed by the video recording. When the system has completely shut down, the system power LED indicator will turn off.

3.11.1 System Reset

The VIA Mobile360 M800 system includes a reset (RST) button for a system power reset or a complete factory reset when required.

Figure 48: RST reset button

- **Power Reset** - If the VIA Mobile360 M800 system hangs during a firmware update process, use a pin or a fingernail to press and hold the RST button for 3 seconds. After the VIA Mobile360 M800 system reboots, the update can be retried.
- **Factory Reset** - A factory reset can be used to restore the VIA Mobile360 M800 system to default system settings if required. To perform the factory reset, press and hold the RST button for 8 seconds or until the audio alert "factory reset in progress" is heard. The system will complete the factory reset and reboot itself. A factory reset of the VIA Mobile360 M800 system can also be used to reset the Wi-Fi password if forgotten.

Note:
The factory reset will remove the ADAS and DSS camera calibration data. Perform ADAS and DSS camera calibration again before using the VIA Mobile360 M800 system.

4. Technical Support and Assistance

- For technical support and additional assistance, contact your local sales representative/board distributor or visit webpage https://www.viatech.com/en/support/technical-support/ for technical support.
- For OEM clients and system integrators developing a product for long-term production, other code and resources may also be made available. Visit webpage https://www.viatech.com/en/about/contact to submit a request.

Appendix A Securing Port Connections with LOCTITE 243 Threadlocker

The connection between the VIA Mobile360 M800 system and the peripheral accessories may become loose due to the vibration created during operation. It is strongly recommended to secure all M12 and SMA port connections with LOCTITE 243 Threadlocker (not included) prior to installation. Follow the steps below to apply the glue.

1. Unscrew the cap of the LOCTITE 243 Threadlocker bottle and align the dispensing head with the thread.
2. Apply one to two drops of glue around the port connector.

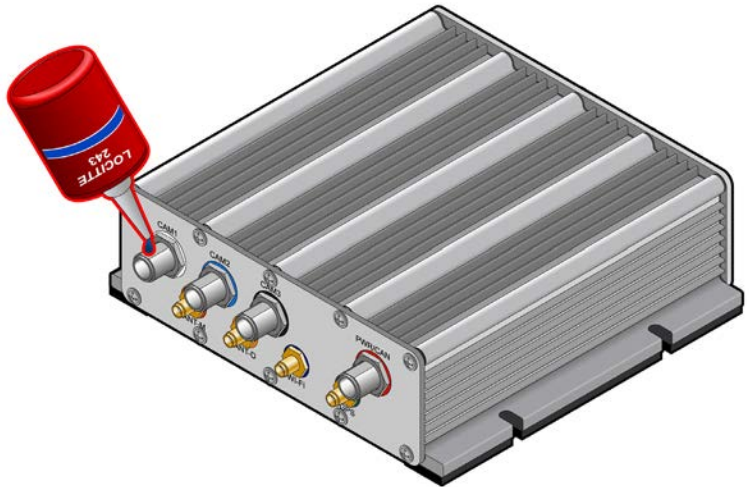

Figure 49: Applying LOCTITE 243 Threadlocker to I/O ports

3. Secure the cable to the port soon after (within 5 minutes) applying the glue to prevent the glue from curing too soon.
4. The glue needs 3 hours to cure completely. Please do not strongly vibrate or twist the cable during this time.

Appendix B Optional Accessories

B.1 4G LTE Wireless Module Kit

The 4G LTE wireless module kit includes a 4G miniPCIe module with a thermal pad and an M2*4mm screw pack as well as an antenna module to provide connectivity for cloud enabled deployments (SIM card not included).

Note:
The 4G LTE wireless module kit is required to utilize the free VIA Fleet Cloud Management Portal demo.
An activated Micro SIM card is also required.

Figure 50: The 4G LTE wireless module kit

Note:
The 4G LTE accessory kit does not include an activated 4G LTE SIM card.

To install the 4G LTE wireless module kit in the VIA Mobile360 M800 system, follow the steps below.

1. Remove the eight screws with a Phillips head screwdriver to remove the cover from the bottom panel of the VIA Mobile360 M800 system.

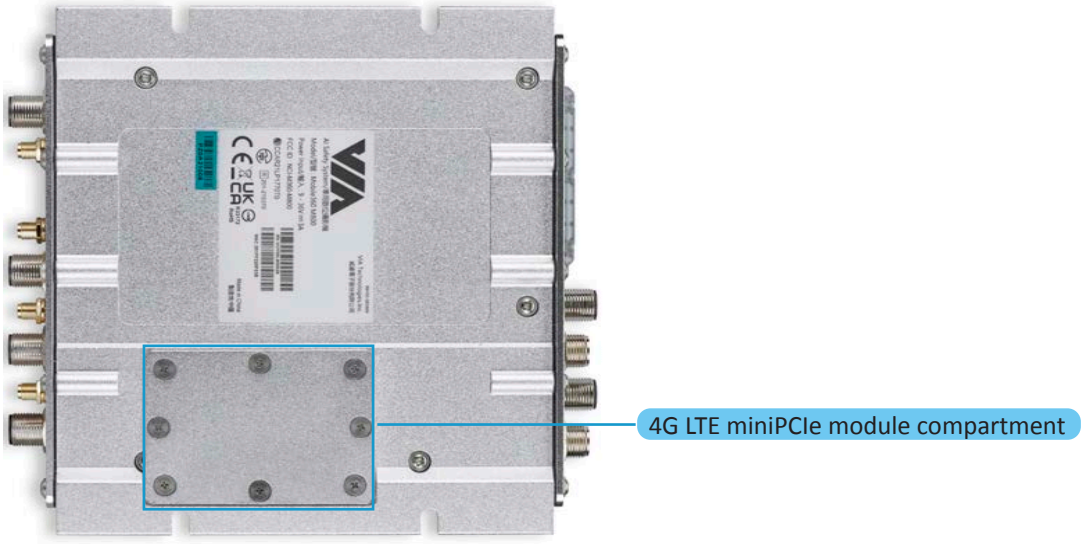

Figure 51: Location of the 4G LTE miniPCIe module compartment

2. Remove the rubber seal cover on the compartment's rim.

Figure 52: Removing the rubber seal cover

3. Remove the yellow insulation tape holding down the two antenna connectors.

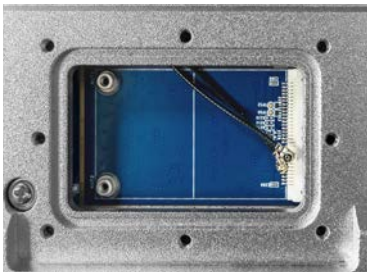

Figure 53: 4G LTE antenna connectors

4. Refer to the figure below to connect the two antenna plugs to the 4G LTE miniPCIe module.
   - Connect the antenna with a red marking on the antenna connector plug to the MAIN port on the 4G LTE miniPCIe module.
   - Connect the other antenna with no marking on the antenna connector plug to the DIV port on the 4G LTE miniPCIe module.

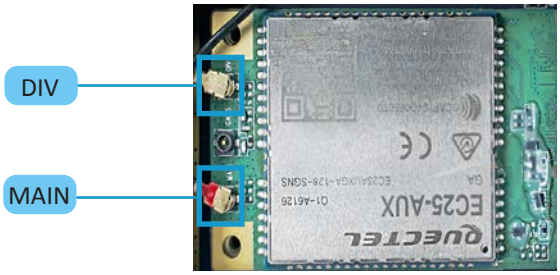

Figure 54: Connecting antennas to the 4G LTE miniPCIe module

5. Carefully insert the 4G LTE miniPCIe module into the miniPCIe slot located in the open compartment.

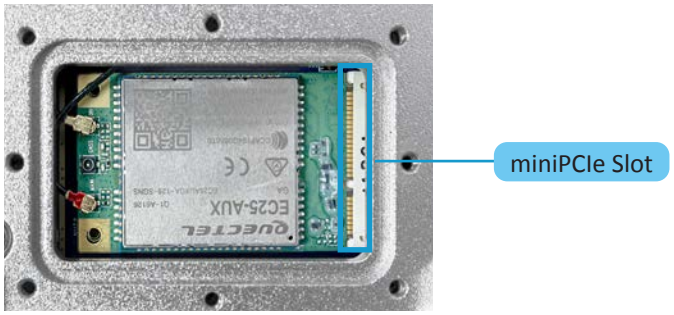

Figure 55: Inserting the 4G LTE miniPCIe module

6. Use the two M2*4mm screws (provided in the 4G LTE wireless module kit) to secure the 4G LTE miniPCIe module tightly in place.

Figure 56: Securing the 4G LTE miniPCIe module

7. Remove the protective film from both sides of the thermal pad (provided in the 4G LTE accessory kit) and place it on top of the 4G LTE miniPCIe module's shielding, taking care to align the corners of the pad with the corners of the 4G LTE miniPCIe module's shielding.

Figure 57: Thermal pad placement

8. Place the rubber seal cover back on the compartment's rim.

Figure 58: Rubber seal cover replacement

9. Place the 4G LTE miniPCIe module compartment's lid back on top of the rubber seal cover and secure the lid tightly in place as shown in the figure below.

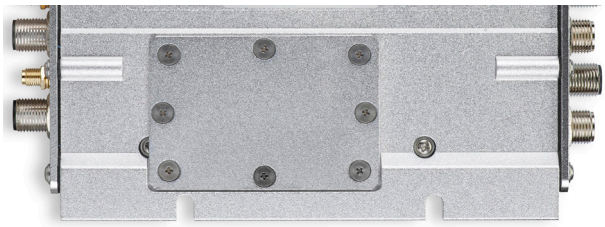

Figure 59: Replacing the 4G LTE miniPCIe module compartment cover

10. Find a suitable location with a flat surface in the target vehicle on which the 4G LTE antenna module can be mounted.
11. Clean the target surface of any dirt and debris with alcohol.
12. Remove the protective 3M tape cover and affix the 4G LTE antenna module on the target surface. Press firmly to ensure proper adhesion.

Figure 60: 4G LTE Antenna module protective 3M tape cover removal

13. Connect the 4G LTE antenna module's cables to the corresponding color-coded antenna connectors on the rear panel of the VIA Mobile360 M800 system.

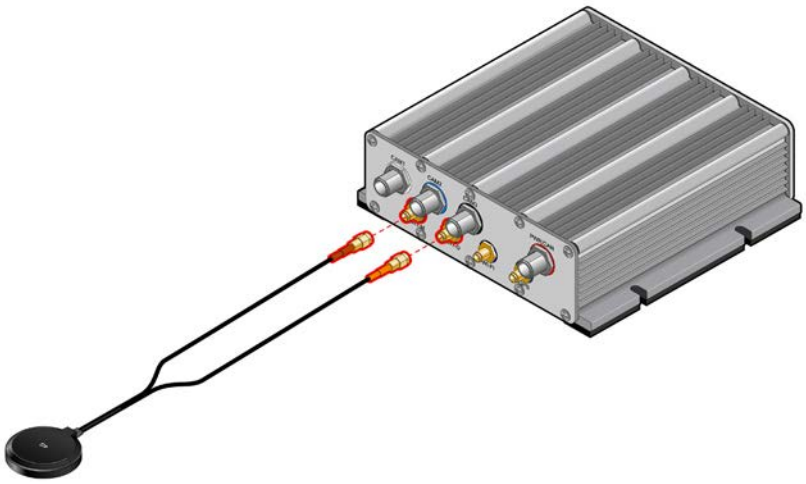

Figure 61: Connecting the 4G LTE antenna module

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

14. To activate 4G LTE wireless network connectivity on the VIA Mobile360 M800 system:
    - Prepare an activated 4G LTE Micro SIM card.
    - Locate the SIM slot on the front panel of the VIA Mobile360 M800 system.
    - Ensure that the correct end of the SIM card is facing the slot.
    - Gently push the SIM card in the slot (using a fingernail or a pin) until a 'click' sound is heard, indicating that it is fully inserted.
    - Finally, power the system on.

Figure 62: Inserting a Micro SIM card

B.2 Seatbelt Sensor

The optional wireless seatbelt sensor accessory is available to be used with the VIA Mobile360 M800 System to determine the fastened/unfastened status of the driver seatbelt.

Follow the steps below to install the seatbelt sensor:

1. Use alcohol to clean the seatbelt buckle target surface located beneath the seatbelt slot.
2. Peel off the protective 3M tape on the seatbelt sensor and affix the sensor to the seatbelt buckle target surface, ensuring that the sensor's magnetic head is uncovered and projecting outwards above the seatbelt slot.
3. Press firmly to ensure proper adhesion.

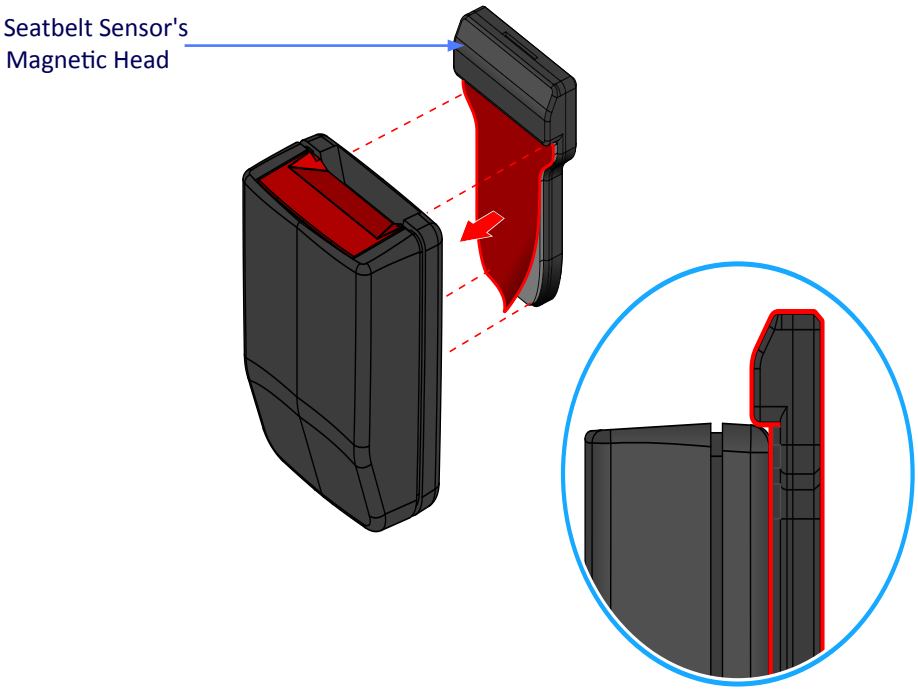

Figure 63: Seatbelt sensor installation

4. Refer to the Appendix section A.1.1 of the VIA Mobile360 M800 EVK Quick Start Guide to pair the seatbelt sensor with the system using the VIA Mobile360 app.

B.2.1 Replacing the Battery

The seatbelt sensor's battery lifespan is subject to the extent of usage. Refer to the table below to check estimated battery lifespan based on average operating hours per week.

Average Operating Hours Per Week	Battery Lifespan (in months)
40	39
80	20
120	13

Table 11: Battery lifespan based on average operating hours per week

The seatbelt sensor's battery life can be checked in the VIA Mobile360 mobile app. Refer to the Appendix section A.1.3 of the VIA Mobile360 M800 EVK Quick Start Guide for information on checking the battery life. If the battery life is displayed as low or very low, it is time for a replacement. Follow the steps below to replace the battery:

1. Gently pry open the seatbelt sensor casing using a keyway removal tool.

Note:
The keyway removal tool is recommended to open the casing without damage. Using a flat-head screwdriver may damage the casing.

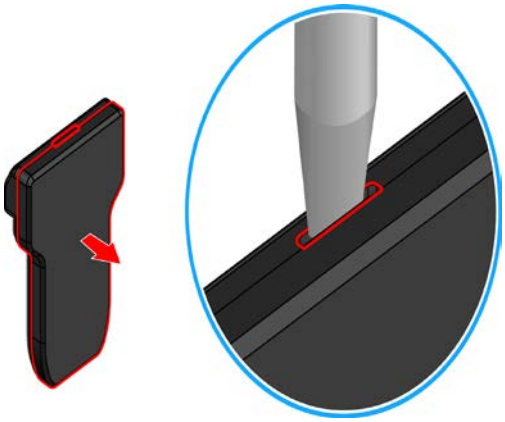

Figure 64: Open the seatbelt sensor casing

2. Replace the CR2032H coin battery with the "+" side facing up.

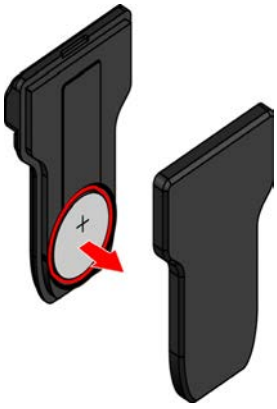

Figure 65: Replace the battery

3. Close the seatbelt sensor casing, ensuring both pieces of the casing are firmly held together and clicked shut.
4. Check the seatbelt sensor's battery life in the VIA Mobile360 app. If the battery life is still displayed as low or very low, fasten and release the seatbelt to trigger the broadcast signal for the seatbelt sensor. The VIA Mobile360 app will now display the updated battery life.

B.3 OBD II Power Cable

The optional OBD II power cable can be used in place of the standard J1939 power cable in vehicles with an OBD II port to provide power, standard CAN bus data and the vehicle's ACC signal. The diagram below shows the connections required.

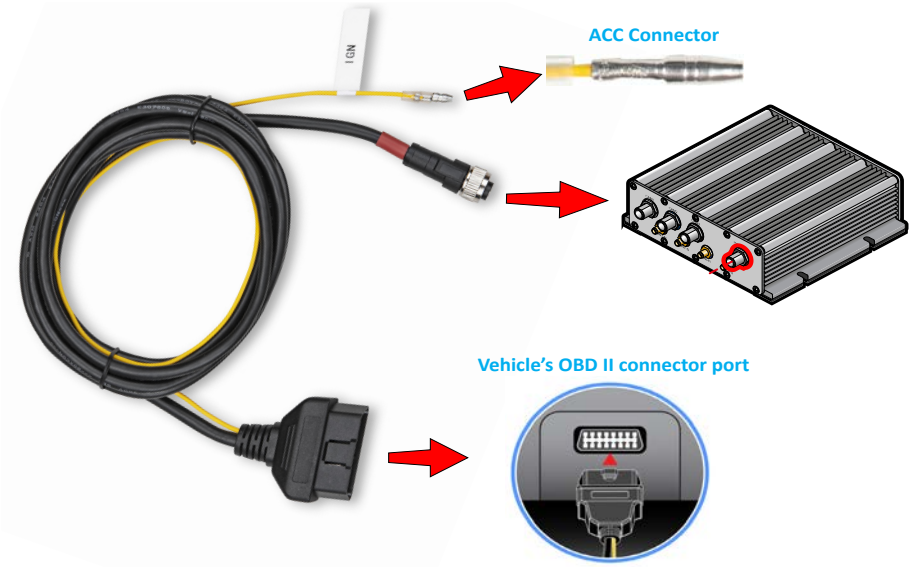

Figure 66: Overview of the OBD II power cable's connections

Note:
Before connecting power supply to the VIA Mobile360 M800 system, check and confirm that the target vehicle can supply the required system power ranging from 9 ~36V DC. After confirming, follow the steps below.

Make sure the target vehicle is powered OFF and follow the instructions below to connect the OBD II power cable.

1. Check the target vehicle's user manual to find the location of the fuse box and the OBD II connection port in the vehicle.
2. Locate the ACC fuse within the fuse box and determine the correct fuse size required.

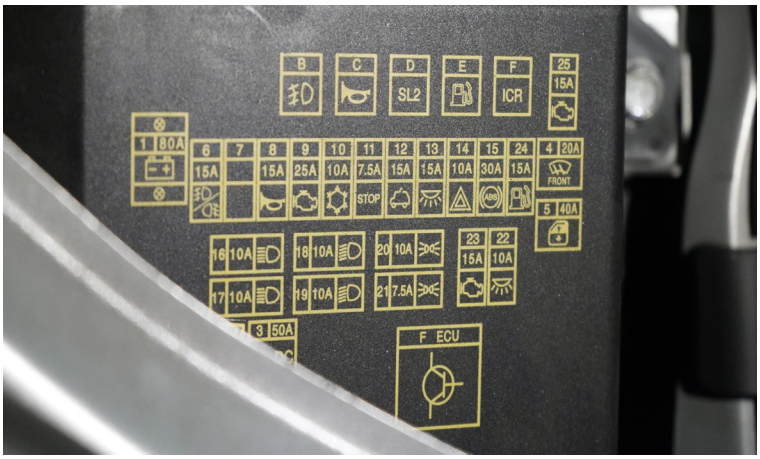

Figure 67: A sample fuse box cover

3. Pull out the ACC fuse from the target vehicle's fuse box.

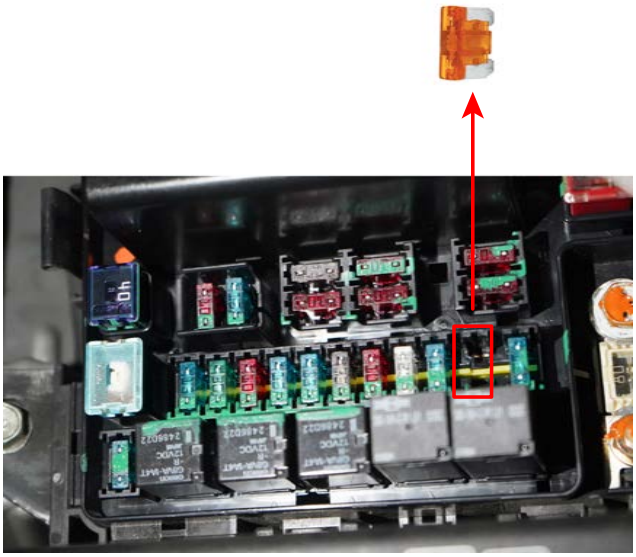

Figure 68: Removing the ACC fuse from the vehicle's fuse box

4. Select a compatible yellow blade fuse holder cable provided in the VIA Mobile360 M800 system's standard package. Plug in the removed ACC fuse into the free slot in the compatible blade fuse holder cable.

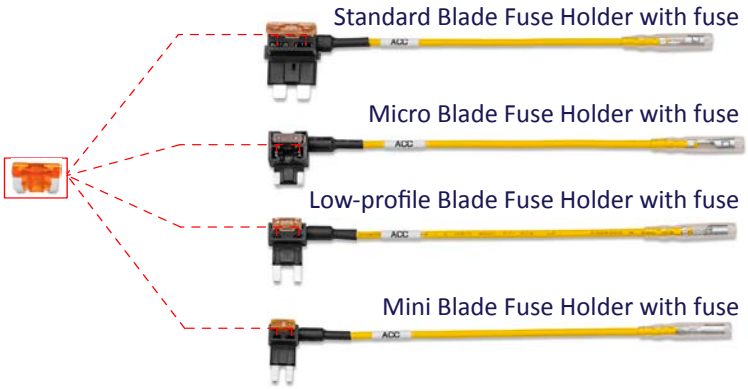

Figure 69: Plug in vehicle ACC fuse into compatible blade fuse holder cable

5. Connect the exposed end of the blade fuse holder cable to the yellow ACC/IGN wire of the OBD II power cable as shown in the diagram below. Make sure to slide the plastic protective cover over the connection points to protect the connection.

Figure 70: Connecting the blade fuse holder cable to the OBD II power cable

6. Insert the blade fuse holder into the ACC fuse slot in the fuse box.

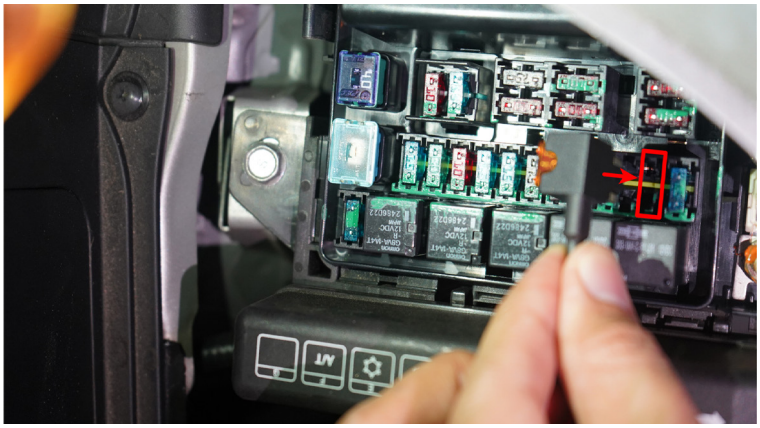

Figure 71: Connecting the blade fuse holder cable to the vehicle's fuse box

7. Plug the OBD II cable to the OBD II port in the target vehicle.

	OBD II Connector	Cable AWG
Signal Name	Pin No.	UL Type and Color
B+	16	18AWG RED
GND	5	18AWG BLACK
ACC-IN	-	18AWG YELLOW Bullet-Terminal
CAN_L	14	26AWG WHITE
CAN_H	6	26AWG GREEN
-	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13 & 15	Not used

Table 12: OBD II cable pin-outs

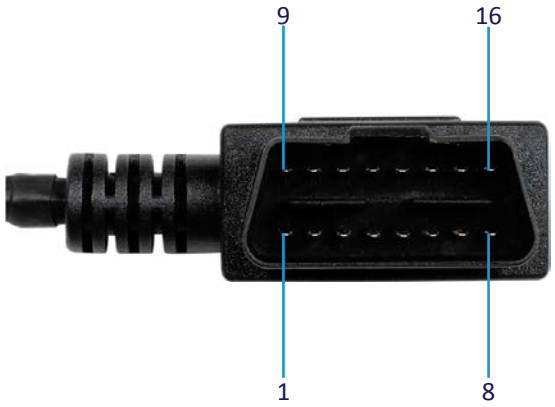

Figure 72: OBD II cable pin-out diagram

Figure 73: Plugging in the OBD II power cable to the OBD II connector

8. Route the cable back to the VIA Mobile360 M800 system and connect it to red color-coded "PWR/ CAN" port on the rear panel of the VIA Mobile360 M800 system.

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

B.4 Ethernet Cable

The optional Ethernet cable can be used to provide a standard RJ-45 LAN interface for the VIA Mobile360 M800 system.

Figure 74: Ethernet cable

The female adaptor of the Ethernet port of the Ethernet cable uses an 8 Position 8 Contact (8P8C) receptacle connector (commonly referred to as RJ-45). The pinout of the 10/100Mbps Ethernet port is shown below.

Pin	Signal
1	TD+
2	TD-
3	RD+
4	REGOUT
5	REGOUT
6	RD-
7	GND
8	GND

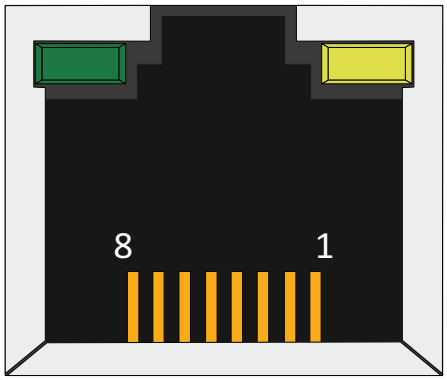

Figure 75: 10/100Mbps Ethernet port diagram

Table 13: 10/100Mbps Ethernet port pinouts

The Ethernet cable connects to the yellow color-coded LAN port located on the front panel of the VIA Mobile360 M800 system, as shown below.

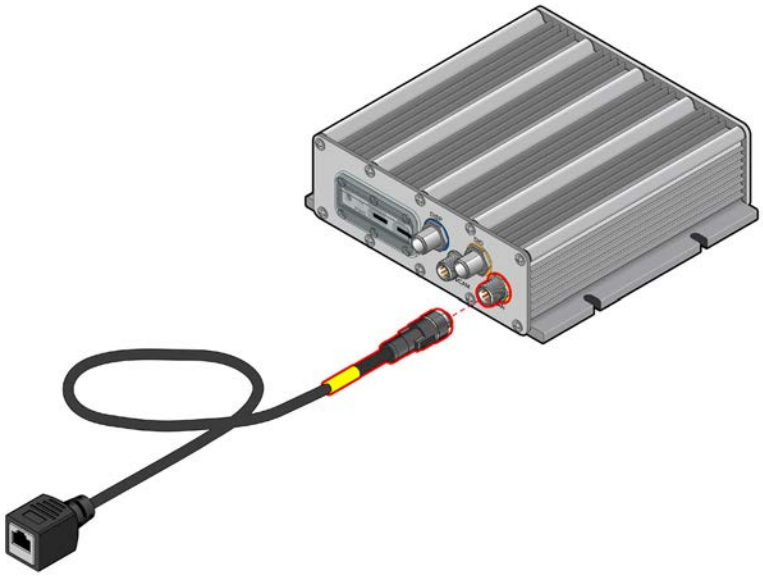

Figure 76: Connecting the Ethernet cable

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

B.5 CAN Bus/RS-232 Cable

The optional CAN Bus/RS-232 cable can be used to add custom accessories to the VIA Mobile360 M800 system.

Figure 77: CAN Bus and RS-232 cable

The cable includes a DB9 head for an RS-232 connection (TX/RX), and exposed wires for CAN high, CAN low, Shield ground, 12V DC-out and ground.

Pin	Signal
2	RS-232 RX
3	RS-232 TX
5	GND
1,4 and 6-9	Not used

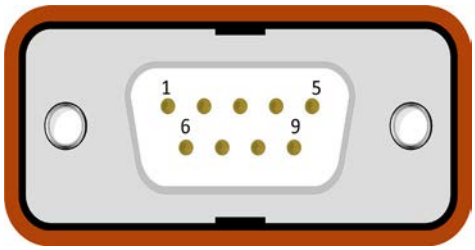

Figure 78: DB9 connector pin diagram

Table 14: DB9 connector's pin-outs

Signal	Signal Direction	VIH/VOH		VIL/VOL	
CAN-H	In/Out	Dominant output state		Dominant output state	
		VCAN_H	2.75 to 4.5V	VCAN_H	2.0 to 3.0V
		VCAN_L	0.5 to 2.25V	VCAN_L	2.0 to 3.0V
		Vdiff	1.5~3.0V@ 115mA max	Vdiff	-0.5~0.05V@ 5mA max
CAN-L	In/Out	Dominant input state		Dominant input state	
		VCAN_H	-12 to 12V	VCAN_H	-12 to 12V
		VCAN_L	-12 to 12V	VCAN_L	-12 to 12V
		Vdiff	0.9 to 5.0V	Vdiff	-1.0 to 0.5V
DC12V OUT	Out	12V±5% @100mA Max		0V	
GROUND	Out	0V		0V	
Shield GND	Out	0V		0V	

Table 15: CAN Bus/RS-232 cable exposed wire specifications

The CAN Bus/RS-232 cable connects to the green color-coded CAN/COM port located on the front panel of the VIA Mobile360 M800 system, as shown below.

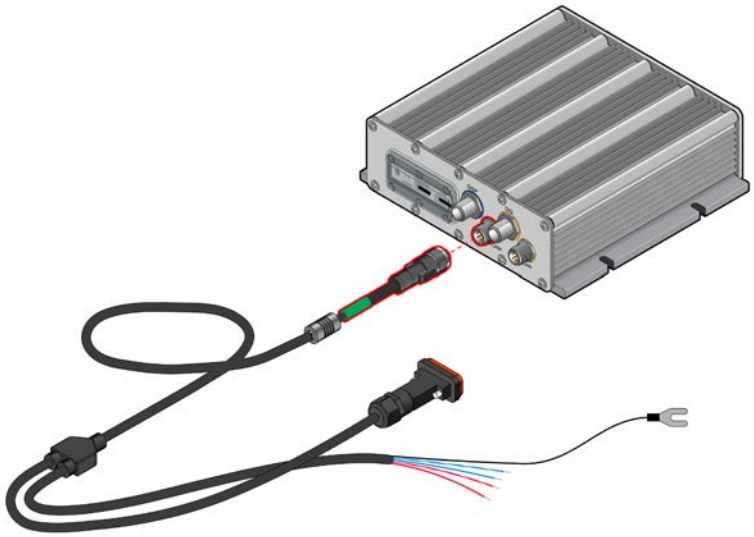

Figure 79: Connecting the CAN Bus/RS-232 cable

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

B.6 Development Kit

The optional development kit can be used to access the system debug console for development purposes as well as provide connection to the system's GPIO interfaces. The development kit consists of a debug board, an M12 12-pin connector to debug board cable, and an M12 5-pin connector to power/CAN RD testing cable.

Figure 80: Development kit

To install the developer kit, follow the steps below.

1. Connect the 4-pin UART interface on the debug board cable to the 4-pin UART pin header on the debug board.

Pin	Signal
1	VCC
2	OUT
3	IN
4	GND

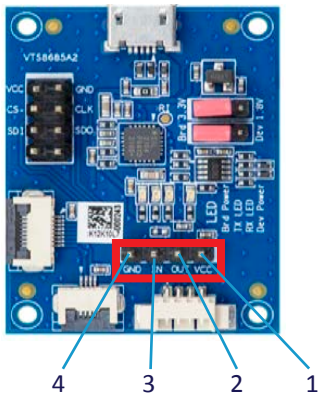

Figure 81: Debug board's UART pin header diagram

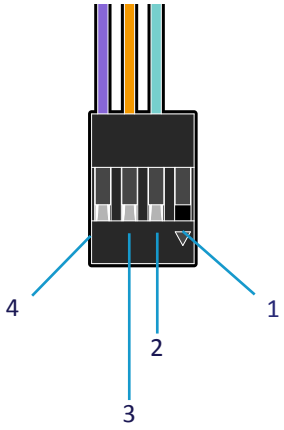

Figure 82: Debug board cable UART Connector pin-outs

Table 16: Debug board's UART pin-outs

2. Connect the debug board cable to the orange color-coded DIO port located on the front panel of the VIA Mobile360 M800 system.

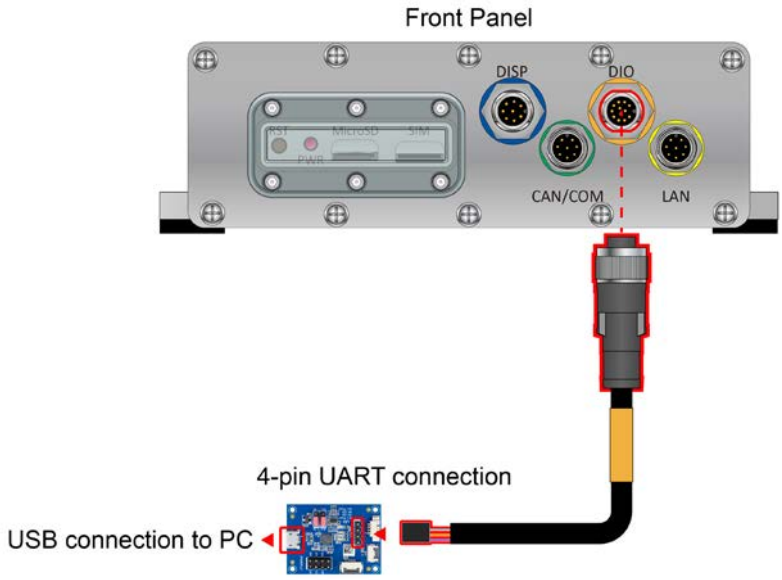

Figure 83: Debug board to system UART connection

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

3. Connect the development board to a computer with a micro USB cable (not included).

4. To connect to an indoor power supply, connect the power/CAN RD testing cable to the red color-coded PWR/CAN port located on the rear panel of the VIA Mobile360 M800 system.

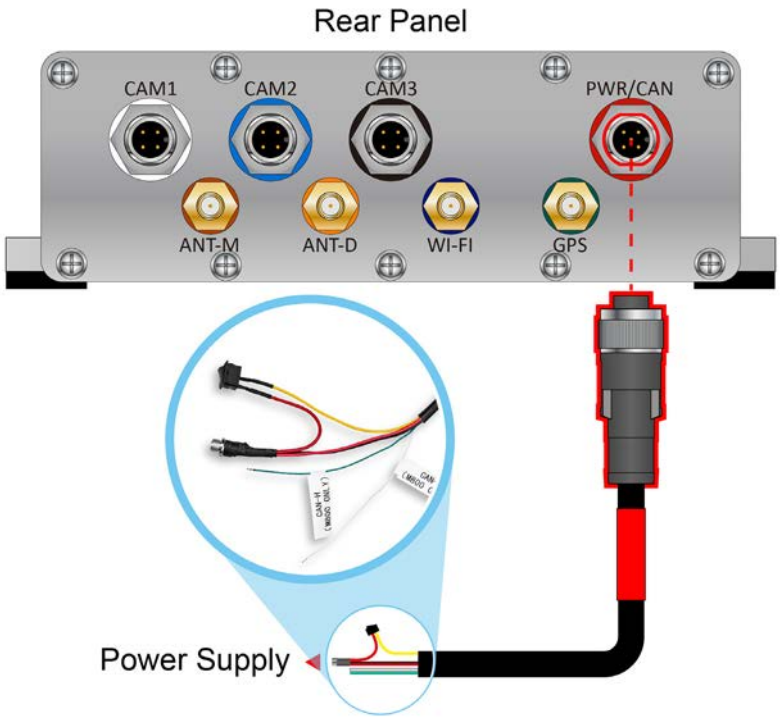

Figure 84: Debug board to system power connection

Note:
It is strongly recommended to secure the I/O port connection on the VIA Mobile360 M800 system with LOCTITE 243 Threadlocker (not included) before connecting a cable. Refer to Appendix A for instructions.

5. A power adapter with outputs 9~36V 3A is required to power the system (not included). Connect the power supply to the female power terminal on the power/CAN RD testing cable. Plug the other end of the power supply to an electrical outlet.

- The power adapter's male terminal must match the following specifications.
  - Length: 12mm ± 0.5mm
  - Inner Diameter: 2.1mm
  - Outer Diameter: 5.5mm

6. To power ON the VIA Mobile360 M800 system, turn the switch connected to the power/CAN RD testing cable to ON. This will simulate the ACC signal from a vehicle.

The power/CAN RD testing cable includes CAN high (CAN-H) and CAN low (CAN-L) wires which can be used to receive CAN Bus signals.

Signal	Signal Direction	VIH/VOH		VIL/VOL	
CAN-H	In/Out	Dominant output state		Dominant output state	
		VCAN_H	2.75 to 4.5V	VCAN_H	2.0 to 3.0V
		VCAN_L	0.5 to 2.25V	VCAN_L	2.0 to 3.0V
		Vdiff	1.5~3.0V@ 115mA max	Vdiff	-0.5~0.05V@ 5mA max
CAN-L	In/Out	Dominant input state		Dominant input state	
		VCAN_H	-12 to 12V	VCAN_H	-12 to 12V
		VCAN_L	-12 to 12V	VCAN_L	-12 to 12V
		Vdiff	0.9 to 5.0V	Vdiff	-1.0 to 0.5V

Table 17: Power/CAN cable CAN-H/CAN-L specifications

The debug board cable also includes exposed wires for GPIO, DC12V power-out and ground connections.

Signal	Pin Direction	VIH/VOH	VIL/VOL
GPI1	In	7~33V @1mA Max	0~2V @0.1mA Max
GPI2	In	7~33V @1mA Max	0~2V @0.1mA Max
GPI3	In	7~33V @1mA Max	0~2V @0.1mA Max
GPI5	In	7~33V @1mA Max	0~2V @0.1mA Max
GPI6	In	7~33V @1mA Max	0~2V @0.1mA Max
GPO1	Out	$V_{out} = V_{in} - 0.9V$; $I_{out} = V_{out} / 1k\Omega$ @30mA Max	0V @0mA
GPO2	Out	$V_{out} = V_{in} - 0.9V$; $I_{out} = V_{out} / 1k\Omega$ @30mA Max	0V @0mA
DC12V Out	Out	12V±5% @100mA Max	0V
GND	Out	0V	0V

Table 18: Debug board cable exposed wires specifications

Taiwan Headquarters

1F, 531 Zhong-zheng Road,
Xindian Dist., New Taipei City 231
Taiwan

Tel: 886-2-2218-5452
Fax: 886-2-2218-9860
Email: embedded@via.com.tw

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940 Mission Court
Fremont, CA 94539,
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