MT 3060

User Guide

NOVATEL WIRELESS.

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251 Renner Pkwy

Richardson, TX 75080 USA

Phone: (972) 633-4400

Fax: (972) 633-4444

Email: info@nvtl.com

www.novatelwireless.com

Warranty Information

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Novatel Wireless M2M warrants to the original purchaser of the product from Novatel Wireless M2M or its authorized distributor (as applicable) that, for a period of one (1) year from the date of shipment of the product from Novatel Wireless M2M, the product hardware will be substantially free from defects in material or workmanship under normal operation, and the product firmware will perform substantially in accordance with the product documentation provided by Novatel Wireless M2M. Novatel Wireless M2M does not warrant that (a) the product hardware or firmware will meet the purchaser's requirements; (b) the operation of the product hardware or firmware will be uninterrupted or error-free; or (c) the product, when integrated in, or combined with, other products or software not supplied by Novatel Wireless M2M, will continue to perform substantially in accordance with the product documentation. This limited warranty is for the benefit of the original purchaser, and is not transferable.

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Regulatory Compliance

FCC

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.

This equipment has been tested and found to comply with the limits pursuant to Part 15 Subpart B, Part 22, and Part 24 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in an appropriate installation. This equipment generates, uses, and can radiate radio frequency energy and, if not used in accordance with instructions, can cause harmful radiation to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

RF EXPOSURE

Your device is a radio transmitter and receiver. It is designed and manufactured not to exceed the emissions limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. These guidelines are based on the safety standards previously set by the U.S. and international standards bodies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless RF devices, such as the device, employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg. SAR values at or below that limit are considered safe for the general public.

The device conforms with the RF exposure requirements for portable devices in accordance with FCC Part 2.1093.

The transmitter is configured with a 10% transmission duty factor, for GPRS Multislot class 8 operation, and is excluded from routine RF exposure evaluation in accordance with FCC Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies, KDB447498 D01, V04.

The CDMA transmitter is configured with a 1.6% transmission duty factor and is excluded from routine RF exposure evaluation in accordance with FCC Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies, KDB447498 D01 v05.

At least 10mm (1/2 in) of separation between the MT 3060 and the user's body must be maintained at all time to ensure FCC RF Exposure compliance.

R&TTE CE

Effective with HW revision 10 (GSM2398-00), the device is in conformity with the requirements of the R&TTE directive 1999/5/EC. It has been fully tested and complies with all the requirements of EN 62311, EN300440-2, EN301489-1, EN301489-3, EN301489-7 and EN60950-1. Compliance to EN301511 has been demonstrated by testing on both the device and the integrated module. RF exposure levels are below the recommended levels at distances of 6.7 cm between the antenna and user.

Novatel Wireless M2M hereby declares that the GSM2398 is in compliance with the essential requirements and other provisions of the Directive 1999/5/EC.

A full copy of the declaration of conformity can be found at http://documentation.nvtl.com

Industry Canada

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.

The MT 3060 transmitter is configured with a 10% transmission duty factor, for GPRS Multislot class 2 operation, and is excluded from routine RF exposure evaluation in accordance with the requirements of RSS-102 section 2.5.

Cet appareil est conforme aux normes d'Industrie Canada exempts de license(s) RSS. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas provoquer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

L'émetteur MT 3060 est configuré avec un facteur de service de transmission de 10%, pour l'opération en GPRS multislot class 2, et est exclu de l'évaluation de routine d'exposition RF en conformité avec les exigences du CNR-102 section 2.5.

ROHS COMPLIANCE

The device complies with the European Union Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment ([RoHS) Directive (2002/95/EC), effective since July 1, 2006, and amendments, and 2011/65/EU (commonly called "RoHS Recast").

DISCLAIMER

The information and instructions contained within this publication comply with all FCC, GCF, PTCRB, R&TTE, IMEI and other applicable codes that are in effect at the time of publication. Novatel Wireless M2M disclaims all responsibility for any act or omissions, or for breach of law, code or regulation, including local or state codes, performed by a third party. Novatel Wireless M2M strongly recommends that all installations, hookups, transmissions, etc., be performed by persons who are experienced in the fields of radio frequency technologies. Novatel Wireless M2M acknowledges that the installation, setup and transmission guidelines contained within this publication are guidelines, and that each installation may have variables outside of the guidelines contained herein. Said variables must be taken into consideration when installing or using the product, and Novatel Wireless M2M shall not be responsible for installations or transmissions that fall outside of the parameters set forth in this publication.

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Introduction

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Description

Novatel Wireless designed the MT 3060 for the Usage-Based Insurance (UBI), telematics, and fleet management markets. The MT 3060 has a rugged plastic housing and includes a disconnect alert feature that uses an in-device backup battery. The MT 3060 is available in GSM/GPRS, 1xRTT, and HSDPA versions. It contains an internal GPS, a cellular antenna, a J1962 compliant OBDII connector, and 3 LED indicators.

The GSM2398 and UMTxxxx variants also contain an internal SIM card holder.

Figure 1-1 Top View

The MT 3060 has a printed label on the top side of the device.
The figure below shows the information included on the label.

Figure 1-2 MT 3060 Label

Technical Specifications

General

Name:	MT 3060
Model:	RTT2211, GSM2398
Approvals:	FCC, CE, RoHS2, Industry Canada
Housing:	Rugged textured plastic enclosure UL94-Vo fire
Dimensions:	55 x 49 x 29 mm
Battery:	Rechargeable lithium-ion battery (230mAh)
Recharge Temperature Range	0 to +45ºC
Operating Voltage:	9 - 16 V DC operational for 12 V vehicle

Radio Technology

Quad-band EDGE/GPRS/EDGE:	850/900/1800/1900 MHz
Tri-band DC HSPA+/HSPA+/ HSPA/UMTS:	850/1900 MHz or 900/1900/2100
Dual-band LTE:	800/1900 MHz

Packet Data

Packet Data:	Class B, Multislot 8 GSM/GPRS Rel 97
SMS Functionality:	
- GSM/HSDPA SMS:	Text, PDU, MO/MT, Cell Broadcast
- CDMA SMS:	Text, MO/MT

Environmental

Operating Temperature:	-20ºC to +60ºC
Storage Temperature:	-20ºC to +60ºC
Humidity:	Up to 85% non-condensing
Vibration Stability:	

Components

GPS Protocols:	NMEA, Binary
Buffered GPS Message Feature:	Yes
Accelerometer:	3-axis digital
On-Board Diagnostics (OBDII):	J1850 PWM, J1850 VPW, ISO-9141-2, ISO-14230 KWP2000, and ISO-15765 CAN protocols supported, VIN, excessive engine speed (RPM), vehicle speed,vehicle battery voltage (low battery warning), check engine light (MIL alert), odometer (trip distance), idle time reporting, low fuel alert.
SIM Access:	Internal
Cellular Antenna:	Internal
GPS Antenna:	Internal
LEDs:	GPS (blue), Cellular (green), OBD (red)
OBDII Connector:	J1962 compliant

Protocols

OBD Protocols:	ISO 9141-2 ISO 14230 KWP 2000 J1850 PWM J1850 VPW Some vehicles only support a subset of these protocols, which may limit the functionality of the MT 3060.
Host Protocols:	AT commands, UDP API, FOTA
Internal Protocols:	UDP API, TCP API
API Control/Status:	AT commands, UDP API, TCP API, AT commands over SMS

Part Numbers

GSM2398-00	(GSM/GPRS)
RTT2211-00	(CDMA 1xRTT)
UMT2212-00	(HSDPA + GPRS/Edge)
CAB2374-01	(J1962 extension cable)

Document References

GSM2398AT001	MT 3060 AT Command Set For GPRS
RTT2211AT001	MT 3060 AT Command Set For 1xCDMA
GSM0000AN019	GSM Network Configuration Worksheet

Additional Features

GSM Registration	GPS Status	Input Event Counter
GPRS Registration	Timer	GPS Overspeed
Velocity	MT Power Save	Message Log Count

Geo-Fence	RTC Alarm	SMS Indication
IP Status	Memory Full Percentage	GPS Distance

On-Board Diagnostics Overview

The Novatel Wireless M2M MT 3060 connects to a vehicle's On-Board Diagnostics (OBDII) port and monitors the OBDII system using communication protocols. An On-Board Diagnostics (OBD) system controls engine functions and serves as the diagnostic control network of the vehicle. All cars built and sold in the United States since 1996 require the newer OBDII system.

You can configure the MT 3060 to provide notification messages based on events triggered by:

- Accelerometer change
- Check engine light (MIL alert)
- Engine RPM
- GPS information
- Idle time
- Low fuel
- Trip Odometer (trip distance)
- Vehicle battery voltage (low battery warning)
- Vehicle Identification Number (VIN)
- Vehicle speed
- Other events monitored by the OBDII system

Some vehicles are not compatible with the MT 3060. If a vehicle is not compatible with the required MT 3060 parameters, then functionality may be limited, problematic, or unavailable.

The 1979 Society of Automobile Engineers (SAE) standard defines the method for requesting diagnostics data and provides a list of standard parameters from the engine control unit.

Since the vehicle manufacturer is responsible for complying with the SAE standard, Novatel Wireless M2M cannot guarantee that the MT 3060 will perform with every vehicle.

2

Features And Functions

GPS

LEDs

Power

Accelerometer

GSM Radio

CDMA Radio

New Event Reporting

AT Commands Over SMS

GPS

GPS functions include:

- NMEA update with all data points
- Novatel Wireless M2M Binary Packets
- Buffered GPS message feature
- Geo-fencing
- Virtual odometer

LEDs

The MT 3060 includes LEDs to indicate OBDII, Network, and GPS status.

The following figures show the MT 3060 OBD II connector and LEDs.

Figure 2-1 MT 3060 Connectors

Figure 2-2 MT 3060 LEDs

The following table describes the LED operation.

MT 3060 LEDs	
OBD (Red)	The OBD LED will flash at a fast rate when the unit is first connected to the OBD port for power. Once a protocol is discovered through the OBD port, the LED will flash at a slow rate.
GPS (Yellow/Amber)	The GPS LED will flash at a fast rate when the unit is acquiring a satellite fix. Once a fix is acquired, the LED will flash at a slow rate.
NETWORK (Green)	The NETWORK LED will flash at a fast rate when the unit is finding cellular coverage. Once cellular coverage is found, the LED will flash at a slow rate.

Table 2-1 MT 3060 LEDs

Power

The MT 3060 requires 9-16 VDC minimum 2 amps input power. Pin 16 on the 16-Pin I/O connector is the positive power input, and pins 4 and 5 are ground. This device contains a battery. This battery is not to be removed or replaced by the user. Please dispose of this device according to local recycling laws.

Accelerometer

The three-axis digital accelerometer provides the following features:

- Motion alert (towing alert)
- Driver behavior reporting
  - Rapid acceleration
  - Harsh braking
- Configurable thresholds
  - Range settings
  - Mode (Normal, Sleep, Wakeup)
  - Wakeup pause (20 to 2560 msec)
  - Sample Rate (0-25 per second)
  - Filter Coefficient and Filter Bandwidth
  - Device Orientation Setup

GSM Radio

The MT 3060 (GSM2398) contains a quad-band (850/900/1800/1900 MHz) GSM radio.

- Class 4 (2W@850/900 MHz)
- Class 1 (1W@1800/1900 MHz)

CDMA Radio

The MT 3060 (RTT2221-00) contains a dual-band (800/1900 MHz) CDMA radio.

- BC0-800 MHz – US Cell
- BC1-1900 MHz – US PCS

New Event Reporting

The MT 3060 has additional event reporting not supported by other Novatel Wireless M2M products. For general event reporting information and for detailed information about these new events, refer to the *MT 3060 AT Command Document (GSM2398AT001)*.

Vehicle Identification Number (VIN)

The VIN is used as a unique identifier which is sent at first power-up with heartbeat messages and with events.

Vehicle manufacturers are responsible for defining the list of data returned, therefore not all vehicles support returning the Vehicle Identification Number.

Excessive Engine Speed (RPM)

Excessive engine speed alerts are triggered when the engine speed (in RPM) exceeds a defined RPM level (in ¼ RPM increments) for a defined period of time in seconds (e.g., 30 seconds).

The MT 3060 has three definable thresholds.

Unnecessary wear and tear on the Powertrain Control Module (PCM) may occur if constant or frequent excessive engine speed is reported. One of the following situations may cause excessive engine speed:

- Obstructions, such as ice or mud, that may cause wheel slippage if the obstruction is not removed
- Revving the RPM while in neutral
- Speeding or reckless driving that causes excessive RPM engine speed

The following AT command example sets the excessive engine speed threshold at 1 to 4000 RPM. Then, if exceeded for 3 seconds, it triggers the input event. This event will clear once engine RPM is below 4000 for 30 seconds.

```
AT$OBDEES=1,4000,3,30
```

Vehicle Speed

A vehicle speed alert is triggered if the device is configured for vehicle speed alerts and the vehicle moves faster than one of the three configurable thresholds (e.g., 70 MPH).

The following AT Command example sets the vehicle speed threshold at 1 to 112 KPH (~70MPH). When the threshold is exceeded for 10 seconds, an input event is triggered. This event will clear when the vehicle speed is reduced to 104KPH (~65MPH).

```
AT$OBDSPD=1,112,10,104
```

Vehicle Battery Voltage (Low Battery Warning)

The vehicle battery voltage alert is triggered when the vehicle's battery is reported to be below a threshold (e.g., 10.8 V) for a user-defined period of time in seconds (e.g., 300 seconds).

The following AT Command example sets the low battery threshold to 10.8 volts. When the voltage remains below this threshold for 300 seconds (5 minutes), it triggers an input event. Restoring voltage above the threshold for 300 seconds (5 minutes) will clear this event.

```
AT$OBDLBL=10800,300,300
```

Check Engine Light (MIL Alert)

When the vehicle's "Check Engine" light illuminates, this indicates that a vehicle issue requires attention for diagnosis and/or repair. This is also known as a Malfunction Indicator Light (MIL). A user can configure a device to detect a MIL issue via the OBDII protocol, and to send an alert when the device detects such an issue.

Trip Odometer Reporting

Trip odometer reporting provides the odometer miles accumulated from ignition-on to ignition-off, which is considered a "trip".

 Ignition events are not yet detected on hybrid or electric vehicles.

Idle Time Reporting

An idle time event is triggered when the vehicle's engine is running without the vehicle moving (i.e., velocity less than 3 KPH) for a defined period of time in seconds (e.g., 300 seconds).

The alert is cleared when the vehicle speed exceeds another speed and time threshold.

Both the violation and clearing of the alert are reported if configured.

The following AT Command example sets the idle time speed threshold to 3 KPH for 5 minutes (300 seconds) with a clearance time of 30 seconds. If the speed remains below this threshold for 300 seconds (5 minutes), it triggers the input event. Restoring speed above this threshold for 30 seconds will clear this event.

```
AT$OBDIDL=3,300,30
```

Low Fuel Alert

The low fuel alert triggers when the vehicle's fuel level falls below a defined threshold in percent (e.g., 12%) for a defined period of time in seconds (e.g., 60 seconds).

The following AT Command example sets the low fuel alert threshold to 12% for 1 minute (60 seconds) with a clearance time of 30 seconds. If the fuel level remains below this threshold for 60 seconds, it triggers the input event. Restoring the fuel level above this threshold for 30 seconds will clear this event.

```
AT$OBDLFL=12,60,30
```

Driver Behavior Acceleration

Rapid acceleration events can be triggered when one of four available thresholds are exceeded as determined by the accelerometer in milli-Gs (e.g., 0.75) for a defined period of time in seconds (e.g., 30 seconds). The event will clear if the acceleration falls below the threshold for a defined period of time. The command may also be configured to clear the event if it persists beyond a maximum duration.

The following AT Command example sets the rapid acceleration threshold #1 to .2G. If this threshold is exceeded for 1 second, then an input event is triggered. Keeping the acceleration of the vehicle below this threshold for 30 seconds will clear this event. There is no maximum duration set in this example.

```
AT$DVBACL=1,200,1,30,0
```

Driver Behavior Deceleration (Harsh Braking)

Rapid deceleration events can be triggered when one of four available deceleration thresholds are exceeded as determined by the accelerometer in milli-Gs (e.g., 1.0) for a defined period of time in seconds (30 seconds). The command may also be configured to clear the event if it persists beyond a maximum duration.

The following AT Command example sets the rapid deceleration threshold #1 to .5Gs. If this threshold is exceeded for 1 second, then an input event is triggered. Keeping the deceleration below this threshold for 30 seconds will clear this event. The event will also clear if the threshold is exceeded for a duration of 10 seconds.

```
AT$DVBDCL=1,500,1,3,10
```

Motion Detection

Motion alerts for vehicles can be configured to communicate that a vehicle is being towed. Motion detection, based on measuring movement via the accelerometer, occurs when the vehicle ignition is off and the vehicle is stationary.

A motion alert is triggered when motion defined in milli-Gs is detected for a defined period of time.

OBDII Basic Event Data

Five additional data items can be included with event messages:

- VIN
- Firmware version ($PKG)
- OBD Protocol (i.e., J1850 PWM)
- Cellular signal strength (RSSI)
- OBD speed

Right/Left Turn (Lateral Acceleration)

Harsh turn events can be triggered when one of two available thresholds are exceeded as determined by the accelerometer in milli-Gs (e.g., 0.75) for a defined period of time in seconds (e.g., 30 seconds). The command may also be configured to clear the event if it persists beyond a maximum duration.

The following AT command example sets the lateral acceleration accelerometer threshold 1 to .25 Gs. If this threshold is exceeded for 2 seconds, an input event is triggered. This event will clear in 15 seconds when the acceleration is below this threshold. The event will also clear if the threshold is exceeded for a duration of 10 seconds.

```
AT$DVBLAL=1,250,2,15,10
```

Up / Down (Vertical Acceleration)

Up and down accelerometer events can be triggered when the threshold is exceeded as determined by the accelerometer in milli-Gs (e.g., 0.75) for a defined period of time in seconds (e.g., 30 seconds). The command may also be configured to clear the event if it persists beyond a maximum duration.

The following AT command example sets the vertical acceleration accelerometer threshold 1 to 1.2Gs. If this threshold is exceeded for 1 second, an input event is triggered. This event will clear in 30 seconds when the acceleration is below this threshold. The event will also clear if the threshold is exceeded for a duration of 10 seconds.

```
AT$DVBVAL=1,1200,1,30,10
```

AT Commands Over SMS

A user can send AT commands to the MT 3060 via SMS. Please refer to Novatel Wireless M2M Application Note *ENF0000AN012 - AT Commands Over SMS* for details.

Store/Transmit Event Data

The user can configure the MT 3060 to store event-generated data in its internal memory to be sent over the air to a remote server. This feature can be enabled or disabled using the AT$MSGLOGEN command.

"Total Number of Unread Messages" is decremented if an unread message is read via the AT$MSGLOGRD command.

Example: Assume there are 50 unread messages in the message queue and the total number of messages in the message queue is 100. This means that the first 50 messages have been read while the last 50 messages have not been read. If a user sends `AT$GPSLOGRD=0,1,51` then the total number of unread messages drops down to 49 after successful transmission of that message. However, if a user sends `AT$GPSLOGRD=0,1,99` then the total number of unread messages still remains at 50—that message is transmitted to the remote server.

A user can also read a message stored in the memory by inputting the appropriate starting index number.

Synchronize RTC Time With GPS Time

The Real Time Clock ("RTC") is synchronized with GPS time automatically every time the device is powered up and first acquires valid GPS data. Additionally, the RTC time is synched with GPS time every time the GPS time rolls over from 23:59:59 to 00:00:01.

Reporting Frequency

The minimum reporting frequency of the device is as follows:
- Periodic reporting is limited to a maximum of 1 per 6 seconds.
- The general reporting interval is 1 message every 2 seconds.

3

Installation

SIM Access (GSM2398 Only)

The GSM2398 versions of the MT 3060 include an on-board SIM carrier. There is no external access to the SIM.

The MT 3060 SIM Installation procedure includes:

- Opening the device
- Inserting the SIM
- Closing the device

The CDMA version of the MT 3060 does not use a SIM, and therefore the device should not be opened.

Opening The Device

To prevent damaging the device, we highly recommend that you use the Metal Lever (Novatel Wireless M2M part number KIT2418-01) when opening the MT 3060.

To open the MT 3060, follow these steps:

1. Insert the tool into the opening and gently push until that corner of the lid unsnaps as shown below.
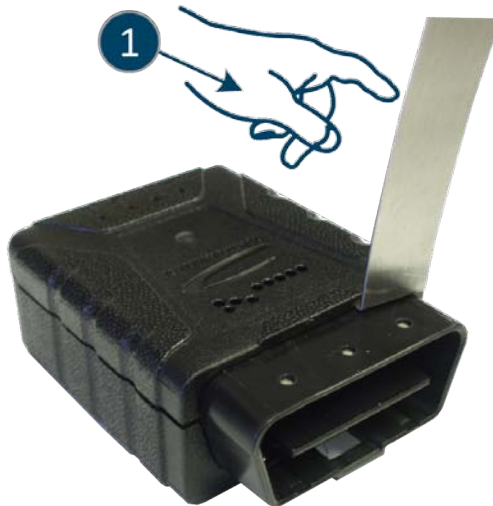

Figure 3-1 Opening the MT 3060 Case

2. Repeat step 1 for the other corner

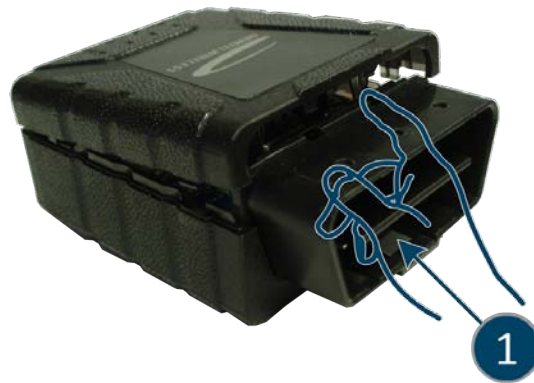3. Carefully slide the cover off the device

Figure 3-2 MT 3060 With Cover Partially Removed

When removing the cover take care not to damage the antennas. The antennas are situated in the top housing and at the rear of the device.
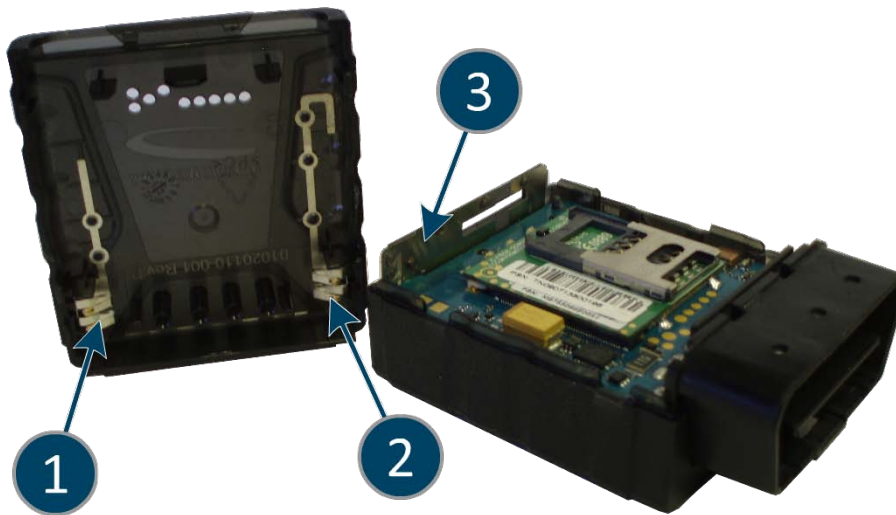

Figure 3-3 MT 3060 With Cover Removed

MT 3060 Antennas

1	Bluetooth Antenna (Not currently supported)
2	GPS Antenna
3	Cellular Antenna

Inserting The SIM

The SIM card is not provided with the MT 3060 device. The SIM must be obtained from the GSM/GPRS service provider and must be provisioned by the operator for data. Always take care to protect the SIM. Without the SIM installed, the MT 3060 modem is not able to communicate with the network.

Insert the SIM using the following steps:

1. After you have removed the device cover locate the SIM holder within the device. The SIM is inserted through the slot in the Cellular Antenna.
2. Insert the SIM into the SIM holder of the MT 3060.
3. Replace the cover (as described below).

Figure 3-4 Antennas with SIM slot.

Closing The Device

Replace the MT 3060 cover using the following steps:

1. Place the MT 3060 cover onto the base of the device as shown in the following figure.
2. Apply gentle downward pressure to the back of the cover first, and carefully slide the cover into place.
3. Apply gentle down and forward pressure to the front of the cover until it snaps shut.

Figure 3-5 MT 3060 Cover Replacement

Activating The Device

Verizon Activation:

To activate with Verizon, the user must contact Verizon and provide the MEID of the device to the provider. Once Verizon has acknowledged that the device is ready to activate, the user will then be required to send an activation string to the network.

Send the activation string: AT+CDV*22899. This will initiate a call with the network. A successful call will last approximately 40 seconds. If the call is terminated within 10-15 seconds, the call was not successful. Multiple attempts might be required. If the call is not successful after a few attempts, please check the MEID of the device and compare it with the MEID provided to the provider.

To verify that the activation has successfully completed, attempt a voice call AT+CDVxxxxxx. If the call is successful, then the over-the-air provisioning was successful.

As part of the activation process, the network will download a new PRL. The device will reset after the PRL is successfully reset to allow the new PRL to take effect.

Sprint Activation:

To activate with Sprint, the user must contact Sprint and provide the MEID of the device. After the MEID is provided to Sprint, the user will need to power on the device when instructed by the carrier. The device will automatically activate when it attaches to the network. For the first attempt the user should see a series of unsolicited reports. If the device gets to +HFA: 6, the device has successfully activated. This process can take up to 60 seconds to complete. AT+HFA? can be used to query the activation state. A response of 1 means the device is successfully activated. A response of 0 means that it has not.

An unsuccessful activation attempt may take up to 5 minutes, because of the number of retries specified by the carrier.

As part of the activation process, the network will download a new PRL. The device will reset after the PRL is successfully reset to allow the new PRL to take effect.

Device Installation

Make sure the vehicle is parked on level ground prior to installing the MT 3060.

Instructions provided in this section describe the hardware installation of the MT 3060 device. To install the MT 3060 in a vehicle, follow these steps:

1. Locate the OBDII socket. The location will vary between different vehicle manufacturers, models, and production years.
2. Carefully insert the MT 3060 into the OBDII socket.
3. After the device is installed, the GPS lock and the cellular connection LEDs will validate that the device is working properly.

 The MT 3060 is NOT a waterproof or sealed device. Keep the device away from water or any other liquids.
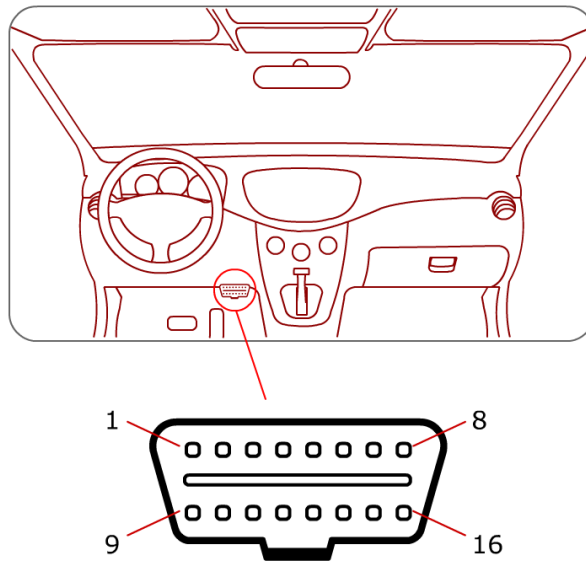
Figure 3-6 Typical OBDII Socket Location

⚠️ The device starts the accelerometer auto-calibration process immediately after the device is installed and the vehicle's ignition is turned on.

Accelerometer Calibration

The accelerometer undergoes an automatic calibration sequence on the first drive after any of the following events:

- Device installation
- Software upgrade
- Vehicle battery replacement (or recharge if battery was fully discharged)
- Device auxiliary processor reset

⚠️ Failure to follow the process below could cause an undesired behavior of the motion feature. Failure to drive straight on level ground during the automatic calibration may reduce the accuracy of the accelerometer and have an adverse impact on events triggered by accelerometer readings.

1. Make sure the vehicle is parked on level ground prior to installing the MT 3060.
2. Drive the vehicle in a straight path on level ground during the automatic calibration. An inclined surface will put part of the gravity vector into the XY plane, which will affect the acceleration thresholds. (A 5.7 degree angle will place 10% of the gravity vector into the XY plane.)

When the vehicle passes 32 KPH, the auxiliary processor assumes that the vehicle is moving in a straight line and determines the forward axis.

4

Accessories

Backup Battery

Metal lever

The following accessories are available for the MT 3060:

Part Name	Part Number
Metal Lever	ASA-3000-0001
Backup Battery	TBD

Backup Battery

The primary function of the backup battery in the MT 3060 is to allow a user to be notified when the device is removed from the vehicle.

Input Event 63 can be used to trigger an output event that can be configured in the same manner as the other output events. If the modem is off (to save power), this event will be turned on. If GPS data is configured in the output event and the data is not available, the last known position can be configured to be used in the output message.

AT$OBDBBT is used to configure the time (in seconds) that the device will stay powered after removal from the vehicle. The range is 30-6000 with the default being 600. In addition, to prevent damage to the battery, the device will turn itself off when the battery reaches the level determined to be the lowest "safe" value.

If the configured output message has not been sent when the timer or battery level dictates that the device should shut down (and is configured to do so), it will be saved and sent the next time the device registers on the network.

Metal Lever

The Metal Lever to open the device. For more information on opening the device, see the SIM Access section in this User Guide.

Figure 4-1 Metal Lever

As an alternative a Flat Head Screwdriver can be used to open the device, however additional care must be used if using this method.

Figure 4-2 Flat Head Screwdriver