976 Route 103, Unit 509
Newbury, NH 03255 USA
Tel: +1 (603) 416–0859
debyltech.com

de Byl Technologies LLC

de Byl Tech Mogu TPMS Module

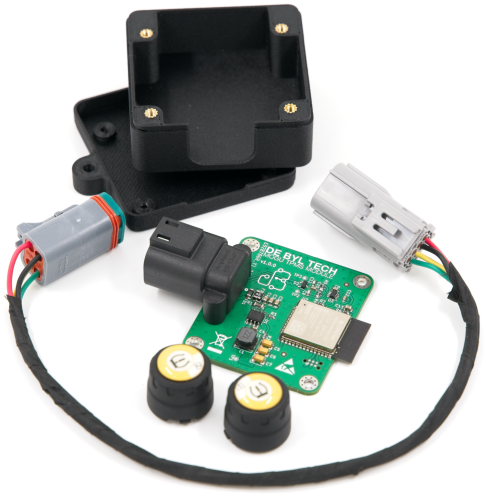
Installation and Operation Manual

This document complies with the IEC/IEEE 82079–1:2019 standard for the preparation of information for use of products

Revision 03 — Released October 2025

Model **DB-TPMS-MOGU-BLE**

Original instructions in American English



Always check for the latest revision of the de Byl Tech Mogu TPMS Module Operation Manual on the product page

The de Byl Tech Mogu TPMS Module is designed, engineered, and manufactured by de Byl Technologies LLC in New Hampshire, USA (Made in USA)

IMPORTANT SAFETY INSTRUCTIONS, SAVE THESE INSTRUCTIONS! Read the entire contents of this manual before installing, operating, or repairing the product. Failure to follow the instructions and safety precautions in this manual can result in damage to the motorcycle's electrical system or improper tire pressure monitoring. Ensure all installers and operators, including resales, read this manual. Keep the manual available whenever interacting with the product (installation, usage, repair, etc.). **By proceeding with setup and operation, you agree you fully understand the contents of this manual and assume full responsibility for product use (including misuse).**

Contents

1 General

1.1 Manual

de Byl Tech Mogu TPMS Module, Installation and Operation Manual, Revision 03, Released October 2025

1.2 Copyright

1.3 Intended Use

This product is designed to provide wireless tire pressure monitoring for Moto Guzzi motorcycles equipped with compatible wheel sensors. The module connects to existing TPMS sensors via Bluetooth Low Energy (BLE) and provides real-time tire pressure and temperature data to compatible display devices. This product is designed to enhance rider safety by providing continuous monitoring of tire conditions. Please see the Fitment section for a comprehensive list of guaranteed motorcycles for fitment of this product.

1.4 Limitations

Every effort has been made to ensure complete and accurate instructions are included in this manual. However, product updates, revisions, and/or changes may have occurred since this manual was published. de Byl Technologies reserves the right to change any information in this manual without incurring any obligation for parts previously or subsequently sold. de Byl Technologies is not responsible for typographical errors in this manual. The latest version of the manual for this product is available on the product page.

1.5 Warranty

The warranty will always be available on the product page. For issues regarding warranty it is recommended to contact us via email (contact@debyltech.com) or visit our website's contact form.

1.6 Safety

de Byl Technologies guarantees the product is safe for road-use only after the operator has ensured proper installation as documented in this manual. The safety of this product can only be guaranteed by proper installation, maintenance, and care by the owner as detailed in this manual.

1.7 Owner Responsibility

As the owner of this TPMS module, you are responsible for ensuring its safety, proper installation, maintenance, and disposal. This device is designed to monitor tire pressure and temperature for enhanced safety, but it is not a substitute for regular tire inspections and maintenance. You should always follow the instructions in this manual for installing and configuring the device, checking it regularly for any signs of damage or malfunction. If the device is damaged, do not attempt to repair it yourself. Contact us at contact@debyltech.com or via our website's contact form.

1.8 Disposal

This electronic device contains various electronic components including a microcontroller, Bluetooth radio, and other electronic components. Proper disposal is required by environmental regulations in the US, Canada, and EU. Follow these guidelines to safely and responsibly dispose of the device:

WEEE Compliance (EU): This product is marked with the crossed-out wheeled bin symbol to indicate that it should not be disposed of with general household waste. It must be collected separately in accordance with local environmental regulations.

RoHS Compliance: This product complies with the EU Restriction of Hazardous Substances (RoHS) directive and does not contain prohibited levels of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), or polybrominated diphenyl ethers (PBDE).

- **Do not dispose of this electronic device in regular household waste**
- Do not burn or incinerate the device, as it may contain materials that release toxic fumes when burned
- **Contact your local electronic waste recycling facility or authorized e-waste collection center for proper disposal**
- In the EU, take the device to a designated WEEE collection point
- Remove any batteries (if user-replaceable) and dispose of them separately at a battery recycling facility
- Contact de Byl Technologies at contact@debyltech.com for information about our take-back program for proper recycling and disposal
- Keep proof of proper disposal as may be required by local regulations

Environmental Responsibility: By properly disposing of this device, you help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling.

1.9 Shipping

Your TPMS module was carefully checked prior to shipping. Regardless, it is important that you thoroughly inspect the product and packaging before you attempt installation of the product.

For each quantity ordered, you should find all parts listed under the Components and Parts section in the shipment. A packing slip is included in every order which includes the items purchased and the order number.

If you discover missing or damaged goods after receiving the shipment, please contact us at contact@debyltech.com or via our website's contact form.

1.10 Liability

de Byl Technologies assumes **no** liability for damages resulting from:

- Use of the product or it's parts for purposes other than those explicitly described in this manual.
- Modification/alteration of the product or it's parts of any kind.
- Injury or illness caused by alteration of the product or improper disposal.
- Incorrect installation or maintenance of the product or it's parts.
- Damage to vehicle electrical systems due to improper installation.

2 Fitment

The de Byl Tech Mogu TPMS Module is designed to work with Moto Guzzi motorcycles that have the factory TPMS wiring harness and connector installed. The module replaces the factory dummy plug and provides TPMS functionality using the included wheel sensors.

Note: "with TPMS" indicates the motorcycle has the factory TPMS wiring harness connector (grey Sumitomo connector under the seat), even if factory sensors were not installed.

Year	Make	Model
2025	Moto Guzzi	V85 TT
2025	Moto Guzzi	V85 TT Travel
2025	Moto Guzzi	V85 Strada
2024	Moto Guzzi	V85 TT
2024	Moto Guzzi	V85 TT Travel
2024	Moto Guzzi	V85 Strada
2023	Moto Guzzi	V85 TT E5
2023	Moto Guzzi	V85 TT Travel E5
2022	Moto Guzzi	V85 TT Adventure E5
2022	Moto Guzzi	V85 TT Centenario E5
2022	Moto Guzzi	V85 TT E5
2022	Moto Guzzi	V85 TT Guardia d Onore E5
2022	Moto Guzzi	V85 TT Travel E5
2021	Moto Guzzi	V85 TT Adventure E4
2021	Moto Guzzi	V85 TT Adventure E5
2021	Moto Guzzi	V85 TT Centenario E5
2021	Moto Guzzi	V85 TT E4
2021	Moto Guzzi	V85 TT E5
2021	Moto Guzzi	V85 TT Travel E4
2021	Moto Guzzi	V85 TT Travel E5
2020	Moto Guzzi	V85 TT
2020	Moto Guzzi	V85 TT Adventure
2019	Moto Guzzi	V85 TT
2019	Moto Guzzi	V85 TT Adventure

3 Components and Parts

Quantity	Description	Manufacturer Number
1	TPMS Control Module	DB-TPMS-MOGU-BLE
1	Wiring Harness	DB-TPMS-MOGU-BLE-WH
2	Wheel Sensors (with CR1632 batteries installed)	DB-TPMS-SENSOR
2	M3.5 × 12mm Mounting Screws	McMaster 99461A954
2	M4 × 12mm Mounting Screws	McMaster 99461A967
2	Security Nuts (optional)*	DB-TPMS-SECNUT
1	Foldable Thin-Walled Wrench (for security nut)	DB-TPMS-WRENCH
—	Replacement Connector (Sumitomo)**	6188-0779

*Security nuts are optional and help prevent sensors from loosening due to vibration
**Available from 3rd party suppliers as a courtesy reference: Corsa Technic

Note: A Phillips head screwdriver is required for installation (not included). No specialized tools are required.

4 Installation

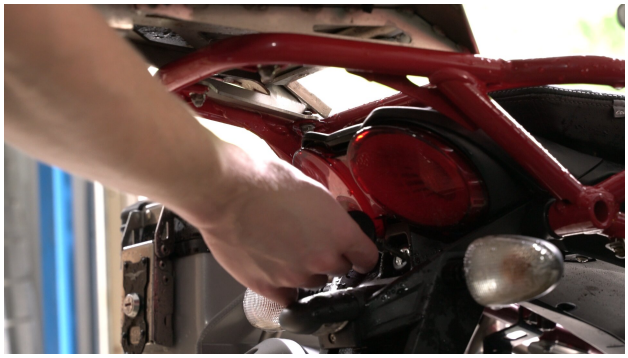
Follow these instructions for proper installation of the de Byl Tech Mogu TPMS Module. Ensure all Components and Parts are present before beginning installation.

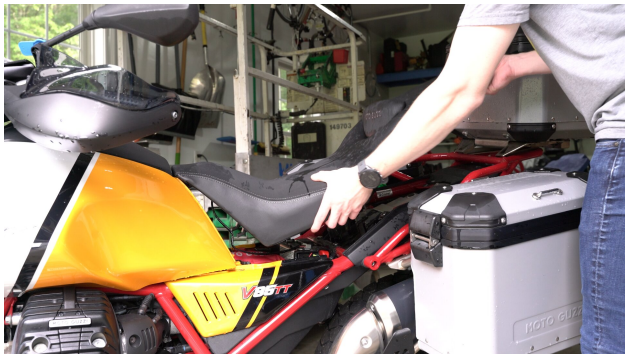
! Installation requires a Phillips head screwdriver (not included) but does not require any specialized tools or disconnecting the motorcycle battery. The TPMS module connects via a plug-and-play harness connector under the seat.

4.1 Installation Steps

1. **Remove the Seat**

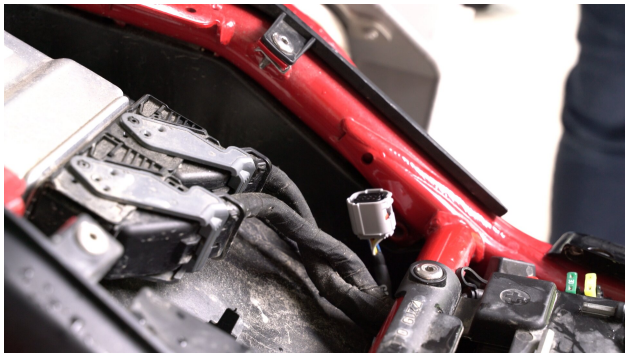
   Locate the seat lock tumbler at the rear of the motorcycle under the tail light. Insert the key and turn to unlock the seat. Lift the seat from the rear and remove it from the motorcycle. If any electrical harnesses are connected to the seat (such as for heated seat accessories), carefully disconnect them before fully removing the seat.





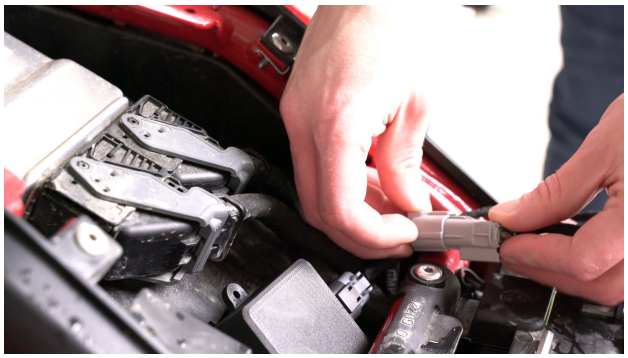
2. **Remove OEM Dummy Connector**

   Locate the grey OEM TPMS connector under the seat. This connector has a factory-installed dummy plug that must be removed. Pinch the release clip on the dummy connector while pulling firmly to disconnect it from the motorcycle's wiring harness.



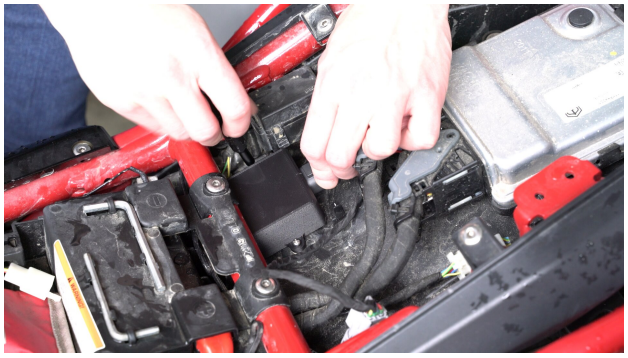
3. **Connect TPMS Module Harness**

   Connect the TPMS module wiring harness to the motorcycle's grey connector. The connectors are keyed and will only fit in the correct orientation. Push the connectors together until you hear or feel a positive click, indicating the locking tab has engaged.



4. **Mount TPMS Module**

   Position the TPMS control module over the factory mounting holes in the plastic undertray. Using the two included mounting screws (M3.5 × 12mm or M4 × 12mm depending on your motorcycle's mounting holes), fasten the module securely to the mounting holes. Do not overtighten the screws as the mounting points are plastic.



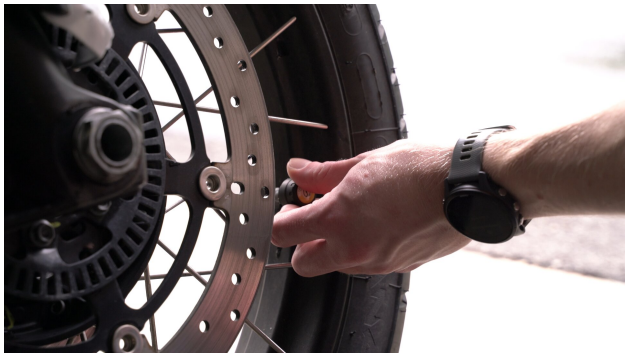
5. **Install Wheel Sensors**

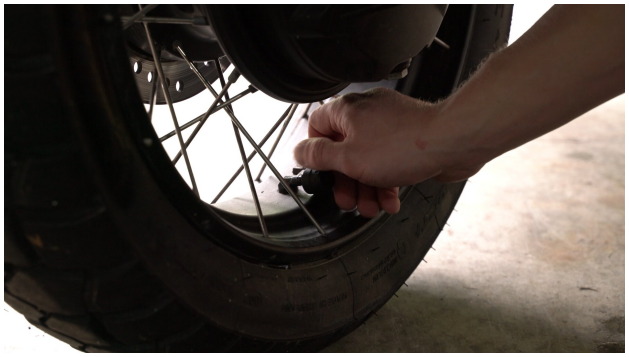
   Install the wheel sensors on both tires:

   - Install the sensor labeled **"1"** on the **front wheel**
   - Install the sensor labeled **"2"** on the **rear wheel**

   The sensors replace the valve stem caps on each wheel. Thread each sensor onto the valve stem and tighten **by hand only**. Do not use tools to tighten the sensors as this may damage the valve stem or sensor threads.

   Optional: For additional security against vibration-induced loosening, install the included security nuts using the provided foldable thin-walled wrench. Thread the security nut onto the valve stem first (from the bottom/inside of the wheel), then install the sensor. Once the sensor is installed, tighten the security nut from underneath using the wrench to lock the sensor in place. Note that security nuts are not required if sensors are tightened correctly and proper pre-ride checks are performed.





6. **Test TPMS Functionality**

   Before reinstalling the seat, verify the TPMS system is working correctly:

   (a) Start the motorcycle (turning on the ignition is sufficient; the engine does not need to be running)

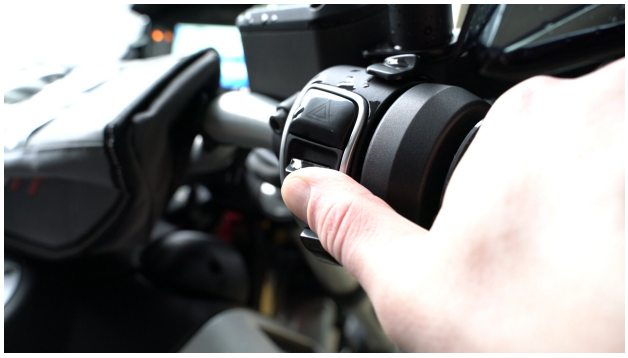
   (b) Locate the right-hand menu rocker switch on the handlebar

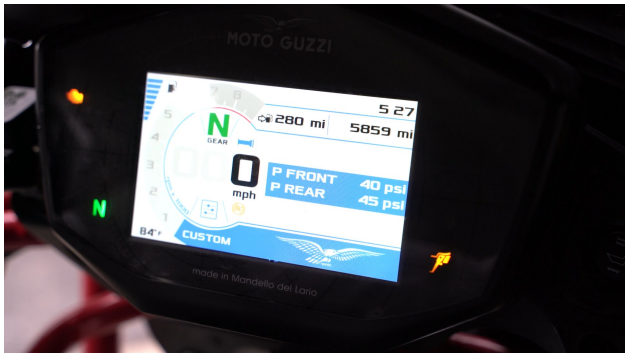
   (c) Press the rocker switch **inward** as if it were a button (do not press up or down)

   (d) Verify the TPMS display appears on the gauge cluster

   The tire pressure readings may initially show dashes or zeros while the module learns and begins receiving data from the sensors. This is normal and readings should appear within 1–2 minutes of operation.

   If the TPMS display does not appear: Turn off the motorcycle and carefully repeat steps 1–5 to verify all connections are secure. If the issue persists after verifying the installation, see the Installation Troubleshooting section.





7. **Reinstall the Seat**

   Once you have verified the TPMS system is functioning correctly, reinstall the motorcycle seat:

   (a) If you disconnected any seat harness connectors in Step 1, reconnect them now

   (b) Position the front of the seat into the mounting tabs on the frame

   (c) Lower the rear of the seat and press down firmly until you hear the latch engage

   (d) Verify the seat is securely locked by attempting to lift it without using the key

   Installation is now complete. The TPMS system will automatically activate whenever the motorcycle's ignition is turned on.

5 Optional Configuration

The de Byl Tech Mogu TPMS Module works out of the box without any configuration required. However, for advanced features such as sensor battery monitoring and pressure calibration, you may optionally use the de Byl Tech TPMS mobile app:

5.1 de Byl Tech TPMS Mobile App

- **Android:** Download from Google Play Store at play.google.com/store/apps/details?id=com.debyltech.tpms
- **iOS:** Coming soon

Scan to download Android app

5.2 App Features

- View battery percentage for each wheel sensor (CR1632 coin-cell batteries)
- Adjust pressure reading calibration to correct any minor sensor error
- Monitor sensor status and connectivity
- View historical pressure and temperature data

The app connects to the TPMS module via Bluetooth when the motorcycle ignition is on. No initial pairing or setup is required - the sensors are pre-paired to the module at the factory.

6 Normal Operation

Once properly installed, the TPMS module operates automatically:

6.1 System Startup

- The system activates when the motorcycle's ignition is turned on
- The module will automatically connect to paired wheel sensors
- Initial sensor readings may take up to 2 minutes to appear
- System status is indicated through the connected display device

6.2 Daily Operation

- The system continuously monitors tire pressure and temperature
- Readings update approximately every 30 seconds while riding
- The module stores the last known readings when the motorcycle is off
- No user interaction is required during normal operation

6.3 Alert System

The TPMS module provides alerts for the following conditions:

- **Low Pressure Warning:** When tire pressure drops below configured threshold
- **High Pressure Warning:** When tire pressure exceeds safe operating range
- **High Temperature Warning:** When tire temperature exceeds safe limits
- **Sensor Communication Lost:** When contact with a wheel sensor is lost
- **System Malfunction:** When the module detects an internal error

7 TPMS Safety Information

⚠CRITICAL SAFETY WARNINGS

TPMS systems are supplemental safety devices and DO NOT replace regular tire maintenance:

- **Always perform visual tire inspections before riding**
- **Manually check tire pressure at least weekly with a reliable gauge**
- **The TPMS may not detect rapid air loss or sudden tire failure**
- **Temperature changes can affect pressure readings - allow tires to cool before checking**
- **Do not rely solely on TPMS alerts for tire safety decisions**

7.1 System Limitations

Be aware of these important limitations:

- The system may not detect gradual pressure loss over several days
- Extreme temperature changes can cause temporary reading variations
- Wheel sensor CR1632 batteries have a finite lifespan (typically 5-10 years); monitor battery levels using the de Byl Tech TPMS mobile app
- When sensor batteries are depleted, new sensors with fresh batteries must be installed
- Radio interference may temporarily disrupt sensor communication
- The system requires a minimum speed (typically 15+ mph) for optimal operation

7.2 When to Seek Service

Contact de Byl Technologies immediately if you experience:

- Persistent false alarms or incorrect readings
- Complete loss of sensor communication
- Physical damage to the module or wiring
- Any warning lights or error messages that persist after following troubleshooting steps

8 Troubleshooting

8.1 Installation Troubleshooting

Symptoms: TPMS display does not appear on gauge cluster after installation

If you cannot access the TPMS display after completing the installation steps, work through the following verification steps before proceeding to the other troubleshooting sections:

1. **Verify Harness Connection**

   Turn off the motorcycle ignition and remove the seat. Check that the grey TPMS harness connector is fully seated and the locking tab has engaged. Disconnect and reconnect the connector, ensuring you hear or feel a positive click.

2. **Check Module Mounting**

   Verify the TPMS control module is securely mounted to the plastic undertray with all three screws properly fastened. Ensure no wires are pinched between the module and mounting surface.

3. **Verify Sensor Installation**

   Check that both wheel sensors are installed on the correct wheels:

   - Sensor labeled "1" should be on the front wheel
   - Sensor labeled "2" should be on the rear wheel

   Ensure the sensors are hand-tightened onto the valve stems and not cross-threaded.

4. **Test Display Access**

   With the motorcycle ignition on (engine running or not), press the right-hand menu rocker switch **inward** like a button. Do not press up or down. The TPMS display should appear on the gauge cluster even if sensor readings show dashes initially.

5. **Check Motorcycle Compatibility**

   Verify your motorcycle model and year are listed in the Fitment section. The motorcycle must be equipped with factory TPMS sensor capability and the OEM grey TPMS connector under the seat.

6. **Inspect for Physical Damage**

   Examine the wiring harness for any signs of damage, pinched wires, or damaged pins in the connector. Check that the TPMS module housing is not cracked or damaged.

If the display still does not appear after verifying all the above:

- Ensure the motorcycle's firmware is up to date (consult your Moto Guzzi dealer)
- Contact de Byl Technologies technical support at contact@debyltech.com with your motorcycle's year, model, and a description of the issue
- If sensor readings appear but seem incorrect, see the *Intermittent or Incorrect Readings* section below

8.2 No Sensor Readings

Symptoms: Display shows no tire pressure data

1. Verify the motorcycle is running and the module has power
2. Ensure sensors are properly installed and have not been damaged
3. Check that the module is within range of the wheel sensors (typically 3-10 feet)
4. Ride the motorcycle for 2-3 minutes at speeds above 15 mph
5. If problem persists, verify sensor battery levels using the de Byl Tech TPMS mobile app

8.3 Intermittent or Incorrect Readings

Symptoms: Readings appear but seem inaccurate or disappear

1. Allow tires to cool to ambient temperature and manually verify pressure
2. Check for loose electrical connections in the wiring harness
3. Ensure the module antenna is not obstructed by metal objects
4. Verify that sensor batteries are not nearing end of life
5. Check for sources of radio interference (cell phones, GPS, etc.)

8.4 Persistent Warning Alerts

Symptoms: Warning lights or alarms continue after addressing tire pressure

1. Manually verify tire pressures with a calibrated gauge
2. Use the de Byl Tech TPMS mobile app to check sensor battery levels and calibration
3. Ensure sensors are properly seated and not damaged
4. Contact technical support if warnings persist after verification

8.5 Power or Electrical Issues

Symptoms: Module does not power on or operate

1. Check motorcycle fuses related to the electrical connection
2. Verify all wiring connections are clean, tight, and properly insulated
3. Test voltage at the module connector with a multimeter (should be 12V DC)
4. Inspect wiring harness for damage, corrosion, or loose connections
5. Ensure proper grounding to the motorcycle frame

8.6 Environmental Operating Conditions

This device is designed to operate under the following conditions:

- **Operating Temperature:** -20°C to +85°C (-4°F to +185°F)
- **Storage Temperature:** -40°C to +100°C (-40°F to +212°F)
- **Humidity:** 5% to 95% relative humidity (non-condensing)
- **Vibration:** Designed for motorcycle vibration environments
- **Water Resistance:** IP65 rated (protected against dust and water jets)
- **Altitude:** Sea level to 3,000 meters (10,000 feet)

Operating outside these conditions may result in degraded performance or permanent damage.

9 Maintenance and Care

To ensure proper safety and operation of the TPMS Module, it is important to check and maintain the system regularly. We recommend doing so as part of every pre-ride check, or every 1,000 miles (~1,600km).

1. Check all electrical connections for corrosion, looseness, or damage
2. Verify that the module is securely mounted and protected from the elements
3. Test sensor communication by checking that current tire pressure readings are being displayed
4. Contact us at contact@debyltech.com or via our website's contact form if any signs of damage or failure(s) are visible!

⚠WARNING

We strongly recommend against riding with a malfunctioning TPMS system as it may not provide accurate tire pressure information, which could lead to tire failure. We offer a Product Warranty which we encourage customers to utilize for replacing damaged or defective components.

10 Regulatory Compliance

10.1 United States Federal Communications Commission (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.

FCC Notice: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

RF Exposure Information: This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance of 20 cm between the radiator and your body.

10.2 Canada Innovation, Science and Economic Development (ISED)

This device complies with Innovation, Science and Economic Development 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.

French: Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage, et
2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

French: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

10.3 European Union (CE)

This product is in conformity with the essential requirements and other relevant provisions of applicable EU directives.

Full compliance documentation, including the EU Declaration of Conformity, FCC Supplier's Declaration of Conformity (SDoC), and ISED compliance statements are available at: debyltech.com/compliance/db-tpms-mogu-ble

10.4 Module Certification Information

This product incorporates the ESP32-WROOM-32E wireless module with the following certifications:

- **FCC ID:** 2AC7Z-ESP32WROOM32E
- **IC Number:** 21098-ESPWROOM32E
- **Frequency Range:** 2400-2483.5 MHz (Bluetooth Low Energy)
- **Maximum Output Power:** <20 dBm EIRP

10.5 Technical Specifications

- **Communication Protocol:** Bluetooth Low Energy (BLE) 5.0
- **Operating Frequency:** 2.4 GHz ISM Band (2400-2483.5 MHz)
- **Antenna Type:** Integrated PCB antenna (ESP32-WROOM-32E module)
- **Operating Temperature:** -20°C to +85°C
- **Module Power Supply:** 12V DC (motorcycle electrical system via harness connector)
- **Module Current Consumption:** <100 mA (typical operation)
- **Wheel Sensor Power:** CR1632 coin-cell battery (included, installed)
- **Sensor Battery Life:** Typically 5-10 years