A037M Manual

A037M

Mini Engine Data Monitor & NMEA 2000 Converter

Designed in UK

Features

- Engine data monitoring and tank level observation
- RPM tracking for accurate engine speed measurement
- Tilt/trim and rudder position monitoring
- Pressure and temperature sensor compatibility
- Wireless configuration via Bluetooth (Android app) and web interface
- Integrated status LED for clear operational feedback
- Pre-installed NMEA 2000 drop cable for quick and hassle-free installation
- Adjustable instance number for multi-engine vessel support
- Fully compatible with NMEA 2000 multifunction displays (MFDs)

Contents

1. Introduction

The A037M Mini Engine Data Monitor & NMEA 2000 Converter is a compact, yet powerful solution designed to bring essential engine monitoring and data conversion features to small and medium-sized boats. As a streamlined version of our popular A037 device, the A037M focuses on the most commonly used functions—making it more accessible and cost-effective for a wider range of vessels.

Despite its small size, the A037M delivers robust performance. It converts engine RPM pulses, resistance-based sensor readings, and voltage inputs into NMEA 2000 data, enabling seamless real-time monitoring through any compatible NMEA 2000 display or chart plotter.

Ideal for single or dual engine setups (when using multiple units), the A037M supports:

- **Up to two resistive sensors** – suitable for monitoring tanks level, rudder position, tilt/trim level and more.
- **Up to two voltage sensors** – for parameters such as oil/fuel temperature & pressure, Coolant temperature, alternator and more.

This versatile input range makes the A037M a practical choice for essential engine data tracking, especially on vessels where simplicity and reliability are key.

For quick and easy setup, the A037M features Bluetooth connectivity. Using the free Android app, users can configure sensor types, calibrate input ranges, and even update the firmware wirelessly—ensuring the device stays up to date with the latest features.

Users on Apple (macOS) and Linux platforms can use the web interface to perform configuration tasks via Bluetooth.

Compact, configurable, and easy to use, the A037M offers a smart, modern solution to marine engine monitoring—ideal for boat owners seeking reliability without complexity.

2. Mounting/ Installation

It is highly recommended that all the installation instructions are read before commencing the installation.
There are important warnings and notes throughout the manual that should be considered before installation is attempted. Incorrect installation may invalidate the warranty.

The A037M was meticulously engineered for application in light commercial, leisure and fishing boat and vessel monitoring markets. Although the A037M comes with conformal coating on the circuit board, the cables are exposed so seawater and dust have the potential to cause a short circuit. It should be securely fitted, avoiding direct exposure to water and areas where salt and dust may come into contact. We also recommend that any unused wires be securely connected to the boat's battery ground to prevent floating voltages or potential interference.

The following installation points should be checked before commencing the installation.

- **Cable disconnection.** Do not mount the A037M while the device is powered and disconnect any sensors, cables or NMEA 2000 drop cables before installation.
- **Avoid electronic compass interference.** Maintain a minimum distance of 0.25 meters from any electronic compass (such as Quark-elec AS08) and ensure that the connection cable remains separate from it.

- **Avoid proximity to antenna cables.** While there is no specific minimum distance requirement between the A037M's connection cable and VHF or other antenna cables, it is advisable to maintain separation. Do not bundle them together in a single cowling.

- **Minimizing wire noise.** Avoid running noisy wires (such as those connected to ignition coils) adjacent to sensitive gauge or alarm wires as noise may be induced into these wires and this may result in inaccurate measurements.

- **Consider all connection cables.** All connections need to be considered and prepared before selecting a proper installation location.

2.1 Mounting Location

Select a flat location to mount the A037M. Avoid mounting on uneven or contoured surfaces, as this could potentially fatigue the device casing.

Ensure that the A037M is mounted in a suitable location appropriately between the NMEA 2000 bus and the senders or gauges.

2.1.1 For Use Without Analogue Gauges

When directly connecting the A037M to the sender for measurement (where analogue gauges are absent), follow these guidelines:

- Position the A037M close to the engine.

- Ensure that the cable length between the sender and the A037M typically does not exceed 0.5 meters.

2.1.2 For Parallel Use with Existing Gauges

If the A037M is used alongside existing gauges to complement displayed information, consider the following:

- Mount the A037M near the gauges (instrument panel).

- Keep the cable length between the gauges and the A037M typically within 0.5 meters.

2.2 Case Dimensions

The A037M enclosure is made of IP56 insulation class 2 plastic. External dimensions are 51x66x20mm.

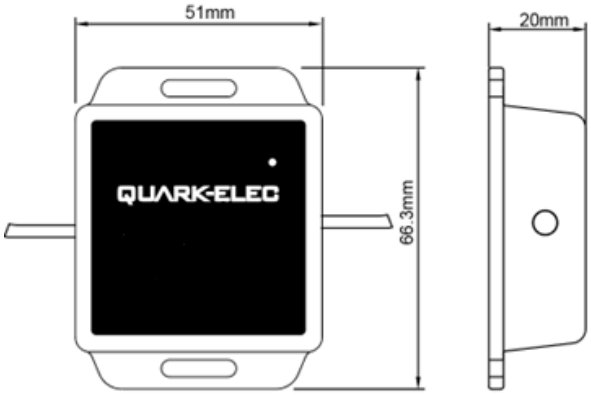

Figure 1 - A037M Dimensions in mm

3. Connections

The following is an example of an A037M set up. This gives an idea of the connections that need to be made to install A037M. All these connections must be taken into consideration when locating a suitable mounting location for the A037M.

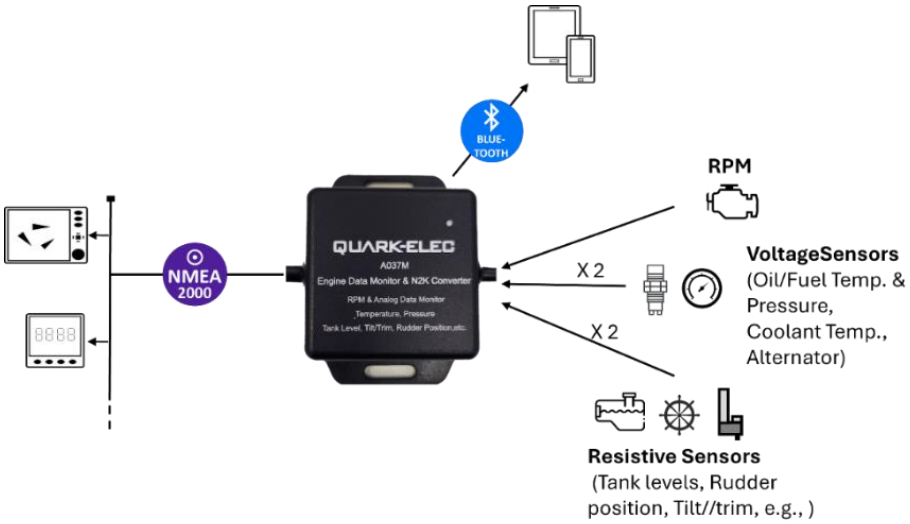

Figure 2 – Installation example

The A037M has the following options for connection to input.

3.1 Sensor Inputs

- **Two Resistive inputs. -** These inputs are designed to monitor a wide range of analogue signals, including tank levels (fuel, fresh water, waste oil, live well, and black water), rudder angle, and tilt/trim position. Both channels are pre-configured to support standard resistive sensors following either the American (240–30 ohms) or European (0–190 ohms) specification. When used with compatible tank level sensors, no additional calibration is required. However, if used for rudder angle or tilt/trim position monitoring, proper calibration will be necessary.
- **Two Voltage Inputs** – The A037M supports a wide range of voltage-output sensors commonly used for engine monitoring. These inputs can be used to measure

parameters such as oil pressure and/or temperature, coolant temperature, alternator and more. With two independent voltage channels, the device provides flexible calibration options, including an 8-point custom calibration table or selection from predefined industry-standard calibration profiles for commonly used sensors and gauges.

- **One RPM input.** One RPM input can be assigned to an engine, as desired. RPM signals could come from different sources depending on the engine. They may come from an alternator output, the ignition coil, or pulse sender (diesel engines).

3.2 NMEA 2000 Port

The A037M features an NMEA 2000 connection, enabling it to integrate seamlessly with an NMEA 2000 network on the boat. The A037M reads all available sensor data, converts the received data to NMEA 2000 PGNs, and outputs these PGNs to the NMEA 2000 network. This allows the data to be easily read and displayed by other devices such as chart plotters, MFDs, and instrument displays on the NMEA 2000 network.
When a related sensor is connected and properly configured, the A037M outputs the following PGNs:

NMEA 2000 PGN	HEX code	Function
127245	1F10D	Rudder Angle/Control
127488	1F200	Engine Parameters, Rapid Update (RPM, Boost pressure, Tilt/trim)
127489	1F201	Engine Parameters, Dynamic (Oil pressure & Temperature, Engine Temperature, Alternator potential, Fuel rate, Coolant pressure, Fuel pressure)
127505	1F211	Fluid Level (Fresh Water, Fuel, Oil, Wastewater, Live well, Black water)

The A037M comes with an 1 meter NMEA 2000 drop cable, facilitating its connection to the NMEA 2000 network directly.

3.3 Power & Status LED

The A037M operates on 12V power source from the NMEA 2000 network. It features a single LED that remains solid green when the device is powered and flashes to indicate data transmission to the NMEA 2000 bus.

3.4 Wires Colour Code

The A037M is supplied with a 5-core cable. The table below indicates the wire colour codes and their respective functions. Please double-check all wiring connections before powering up the device to prevent potential damage.

For any unused wires, ensure they are properly protected from water and salt exposure. Ideally, these should be connected to the boat's battery ground to minimise the risk of electrical interference or corrosion.

Wire colour	Wire name
Green	Resistive 1
Yellow	Resistive 2
White	Voltage 1
Brown	Voltage 2
Red	RPM

3.5 Bluetooth

The A037M is equipped with a built-in Bluetooth module (BLE 5.3) that provides a quick and convenient way to configure the device. An Android app is available for download from our website. This app allows

users to perform setup, configuration, and calibration via Bluetooth. For users without an Android smartphone, the A037M can also be configured using a web interface over Bluetooth. This interface is compatible with Windows, Linux, and macOS platforms. Please note that iPhones and iPads are not currently supported.

4 Setup

To ensure proper operation, the A037M must be correctly set up and, in some cases, calibrated. Start by connecting the A037M to the NMEA 2000 network. Once powered, the green LED will remain steadily lit, indicating that the device is ready for use or configuration.
Configuration can be performed via Bluetooth using one of the following methods:

- **Android users** can download the configuration app from the Quark-elec website to set up the device and monitor data.
- **Windows and macOS users** can complete the configuration by visiting the link provided below.

  https://www.quark-elec.com/doc/tool/A037mini/

  Note: iOS devices (iPhone/iPad) are not currently supported. Apple users must use a Mac for configuration.

The following section uses the Android app as an example to explain the configuration and calibration process. Configuration via the web link follows a similar procedure.

For instructions on how to install the app, please refer to the 'App Installation' section.

4.1 Setup Bluetooth Connection

Launch the A037M configuration app on your Android device and tap '**Start Scanning**'

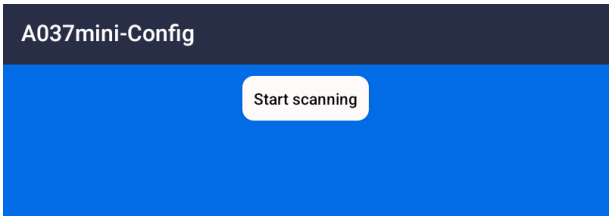

Figure 3 - Default App Screen

When the device is detected, its device ID will be displayed. Select '**Connect**' to establish a connection.

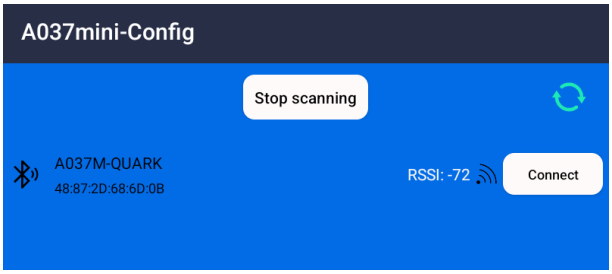

Figure 4 - Connection

Once connected, tap **'Config'** to access the configuration page.

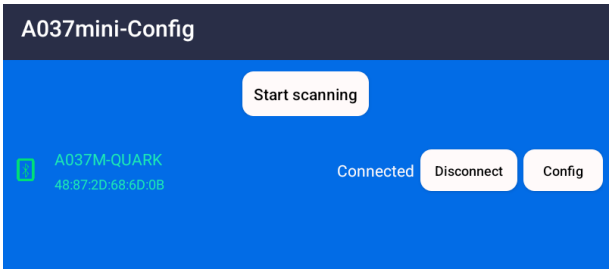

Figure 5 – Connected

4.2 Configuration

The main configuration page presents three options:

- **Input Pinout Settings –** Configure parameters for the input channels.
- **NMEA 2000 Output Settings –** Set the desired output parameters for the NMEA 2000 network.
- **Upgrade Firmware –** Used to update the device with future firmware releases.

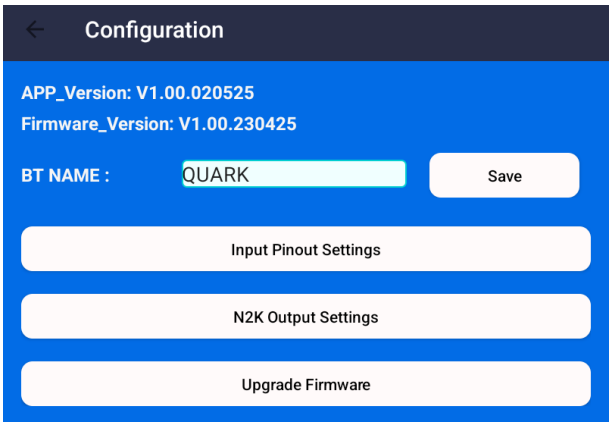

Figure 6 - Main Menu

Input Pinout Settings allow you to configure the type of data being received by each input channel.

In the example below, the green resistive input is connected to a resistive rudder sensor. A typical rudder sensor outputs resistance in the range of 0 to 190 ohms, which is used in this case. The green resistive input is configured to monitor rudder angle. If the rudder's range is from -45° (far port) to +45° (far starboard), you will need to calibrate the input so the system can accurately interpret these limits. This is done using *markers*, which define the minimum and maximum values of the monitored equipment.

To calibrate the markers:

1. Move the rudder to its minimum position (e.g. -45°).
2. In the Calibration section, select Measure to capture the input value at this position—this becomes your minimum marker.
3. Move the rudder to its maximum position (e.g. +45°), then select Measure again—this becomes your maximum marker.
4. Save the configuration.

This calibration process is similar for other input types, including RPM (pulse), resistance, and voltage-based sensors. If the sensor does not exhibit a linear trend, you will need more than two markers to achieve more accurate measurements. The A037M supports up to eight markers for a single input.

Further details on calibration for each input type can be found in the **Calibration** section.

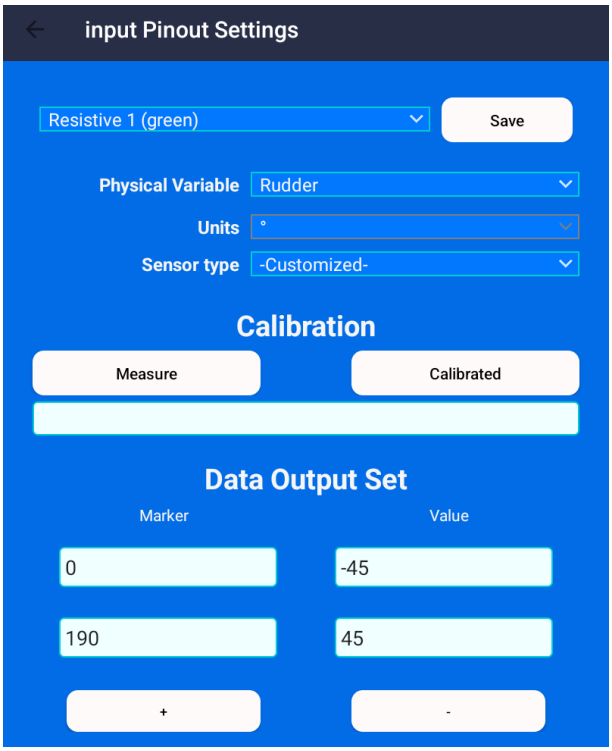

Figure 7 - Input Pinout Settings

To ensure the relevant PGNs are output and can be read by devices on the N2K bus, the N2K Output settings must be properly configured. Still take above rudder sensor setting as the example. Under the Rudder Control option, Instance 0 is set by default. If you need to monitor multiple rudders, you can assign each rudder sensor a unique instance value.

Direction order can be configured for the engine as reverse position or normal position.

The Angle order corresponds to the wire to which the rudder is physically connected. This must be selected, along with enabling the 'Enable PGN' option.

With these settings complete, the rudder data, including the angle values, will be transmitted to the NMEA 2000 network after re-power the A037M.

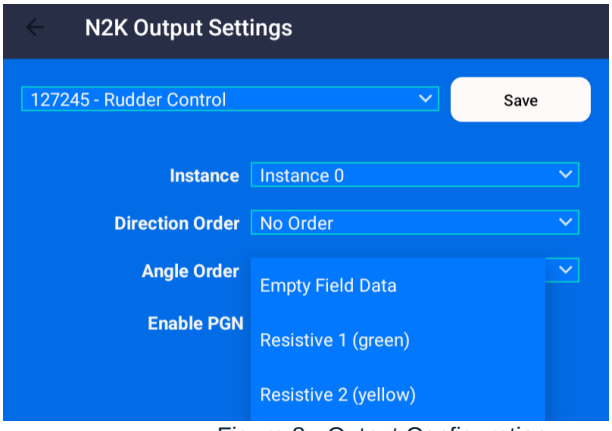

Figure 8 - Output Configuration

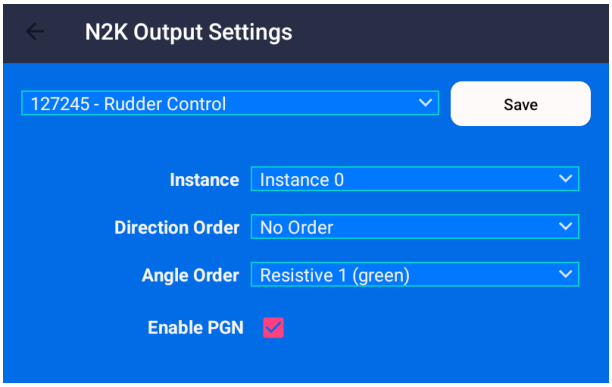

Figure 9 - PGN Enabled

The table below lists the PGNs, along with the associated data types and corresponding input types.

PGNs	Information	Input type
Rudder Control (172745)	Rudder	Resistive
Engine Rapid Update (127488)	Engine Speed	RPM
	Engine Boost	Voltage
	Engine Tilt/Trim	Resistive
Engine Parameters Dynamic (127489)	Oil Pressure	Voltage
	Oil Temp	Voltage
	Engine Temp	Voltage
	Alternator (VDC)	Voltage
	Fuel Rate	Voltage
	Coolant Pressure	Voltage
	Fuel Pressure	Voltage
Fluid Level	Fuel Level	Resistive
	Fresh Water Level	Resistive
	Waste Water Level	Resistive
	Live Well Level	Resistive
	Oil Level	Resistive
	Black Level	Resistive

⚠ Please ensure that any unused wires are securely connected to the boat's battery ground to prevent floating voltages or potential interference. Additionally, disable the related PGNs in the output configuration to avoid any confliction.

5 Calibration

The calibration process involves creating a reference table that maps input values (referred to as Markers, such as resistance, voltage level, or pulse frequency) to their corresponding calibrated output values (Values). This allows the A037M to accurately interpret and convert sensor data, ensuring precise and reliable output during operation.

The calibration function can be accessed through the Input Pinout Settings menu.

5.1 Resistive Sensor Calibration

The Calibration tool allows you to read and view live sensor data from connected resistive sensors, such as tank level sensors, rudder sensors, or tilt/trim sensors. This process is essential for configuring the Data Output Set table, which maps raw sensor readings to corresponding output values (e.g., fluid level percentages).

The general approach is to input the measured sensor data into the Marker column, and the corresponding real-world value (e.g., tank level %) into the Value column. The following steps explain how to calibrate a tank level sensor, though the same principles apply to other sensor types.

Calibration Steps (Tank Level Sensor Example):

1. **Start with an empty tank.**
   Click Measure to read the current sensor value.
   Enter this value in the first row of the Marker column.
2. In the first row of the Value column, input the percentage that corresponds to an empty tank—typically 0% or 1%.
   This value will be shown on your chart plotter when the tank is empty.
3. **Fill the tank to 20% of its capacity.**
   - Click Measure again to obtain the new sensor reading.
   - Enter this value into the second row of the Marker column.
   - Input 20 into the second row of the Value column.
4. **Repeat the process** as you fill the tank to 40%, 60%, 80%, and 100% of its capacity:
   - For each fill level, click Measure to obtain the current sensor data.
   - Enter the data into the corresponding row of the Marker column.
   - Input the corresponding percentage into the Value column.
5. **For tanks with irregular shapes**, it is recommended to take additional measurements at smaller intervals to improve accuracy.
   - Use the '+' and '–' buttons to add or remove rows in the Data Output Set table as needed.
6. Once all desired calibration points have been entered, click Save to store the data set and apply the new calibration settings to the device.

The calibration procedure for rudder sensors and tilt/trim sensors is similar to that of the tank level sensor. Simply follow the same steps using the relevant sensor readings and appropriate value ranges.

5.1.1 EU or U.S.A Standard's Tank level Sensor

There are two primary standards commonly used for measuring tank levels on boats: the European standard and the American standard. Both are widely supported and do not offer any particular advantage over the other selection typically depends on the sensor or system installed on the vessel.

- European standard sensors operate with a variable resistance range from 0 ohms (empty) to 190 ohms (full).
- American standard sensors use a resistance range from 240 ohms (empty) to 30 ohms (full).

The tank settings for both standards are pre-configured. Calibration is not required as long as the correct sensor standard is selected under Sensor Type.

5.1.2 N2K Output Settings

Once the Data Output Set table has been filled in with the appropriate calibration data, follow the steps below to configure the related NMEA 2000 (N2K) output PGN.

1. Navigate to the N2K Output Settings tab.
2. From the PGN dropdown menu, select PGN 127505: Fluid Level.
3. Choose the appropriate Instance:
   - Select Instance 0 for the first tank level sensor.
   - Use Instance 1, Instance 2, etc., for additional sensors as needed.
4. Enter the tank's capacity in cubic meters in the Capacity field.
5. From the Type dropdown list, select the appropriate tank type (e.g., Fuel, Water, Waste, Live well).

Figure 10 - Tank Type Settings

6. In the Input dropdown, select the correct input channel to which the sensor is physically connected.
7. Tick the Enable PGN checkbox to activate the data output.

Finally, click Save to store the settings to the device, and power cycle the A037M for the changes to take effect.

The N2K output settings procedure for rudder sensors and tilt/trim sensors is similar to that of the tank level sensor.

5.2 Voltage Sensor Calibration

A voltage-output pressure or temperature sensor generates an electrical signal that corresponds to the pressure or temperature being measured. Typically, this output is a direct current (DC) voltage that varies proportionally with the measured value. These sensors are widely used in marine and automotive applications due to their reliability, simplicity, and ease of integration.

The general approach is to input the measured sensor data into the Marker column, and the corresponding real-world value (e.g., pressure in Bar) into the Value column. The following steps explain how to calibrate a pressure sensor (e.g., one with a 0.5V to 5V output). The same principles also apply to voltage-output sensors used for temperature measurement.

Calibration Steps (Pressure Sensor Example):

1. Power up the A037M and launch the configuration app on your Android device. Alternatively, you can use the online configuration tool via A037 Mini Configuration

Tool. Both options have similar interfaces and follow the same setup procedure.

2. Navigate to the Input Pinout Settings tab and select the appropriate voltage input from the Input dropdown menu.
3. From the Physical Variables dropdown list, select Pressure V.
4. In the Units field, choose either Bar or PSI.
5. From the Sensor type dropdown menu, choose the correct sensor model. If your sensor model is not listed, select Customized to manually calibrate the sensor.

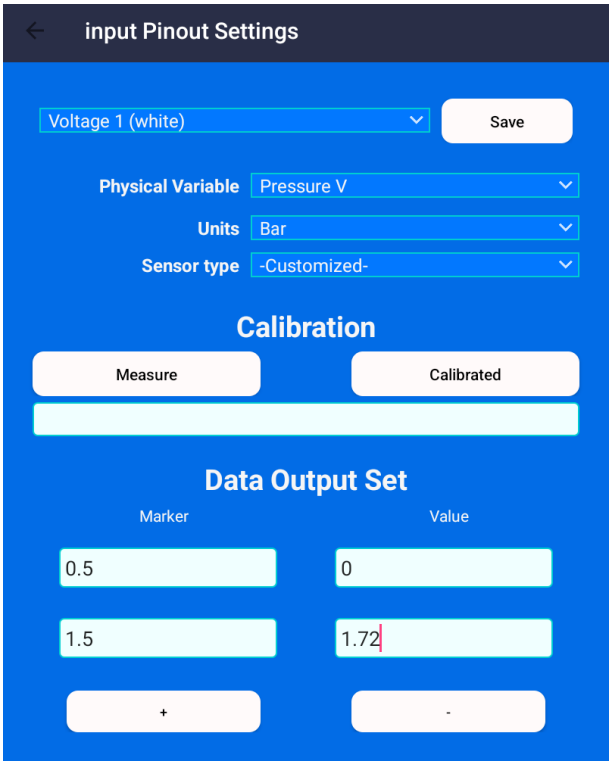

Figure 11 - Voltage Input Data Type

6. If using the Customized option, click on the Calibration button to access the Data Output Set table.
7. With the sensor installed but no pressure applied (zero pressure), click Measure to read the current voltage signal. Input this value into the first row of the Marker column. In the same row of the Value column, input the corresponding pressure value—typically 0 Bar or 0 PSI.
8. Gradually apply known pressure values to the sensor (e.g., using a calibrated pressure source or gauge). For each step (e.g., 25%, 50%, 75%, and 100% of full scale), click Measure to record the sensor output voltage.
   - Enter each measured voltage into the corresponding row of the Marker column.
   - Enter the known pressure value into the corresponding row of the Value column.
9. For greater accuracy, especially if the pressure range is wide or the sensor exhibits non-linear characteristics, take additional readings at smaller pressure increments.
   - Use the '+' and '–' buttons to add or remove rows in the Data Output Set table as needed.
10. After entering all necessary calibration points, click Save to store the configuration.
11. Repower the A037M device if prompted, to apply the new settings.

5.2.1 N2K Output Settings

Once the Data Output Set table has been completed with the calibrated data, follow the steps

below to configure the corresponding NMEA 2000 (N2K) output PGN:

1. Navigate to the N2K Output Settings tab.
2. From the PGN dropdown menu, select PGN 127489: Pressure.
3. In the Instance field, select the appropriate instance number:
   - Use Instance 0 for the first pressure sensor.
   - Use Instance 1 for the second sensor, and so on.
4. Select the appropriate voltage input (e.g., Voltage 1 (White) or Voltage 2 (Green)) from the dropdown menu corresponding to the sensor being configured. The app provides seven dropdown fields to assign Voltage 1 and Voltage 2 inputs to specific sensor types, such as oil pressure, oil temperature, engine temperature, alternator voltage (VDC), fuel rate, coolant pressure, and fuel pressure. For example, if Voltage 1 is connected to an oil pressure sensor, select Voltage 1 in the 'Oil Pressure' dropdown field.

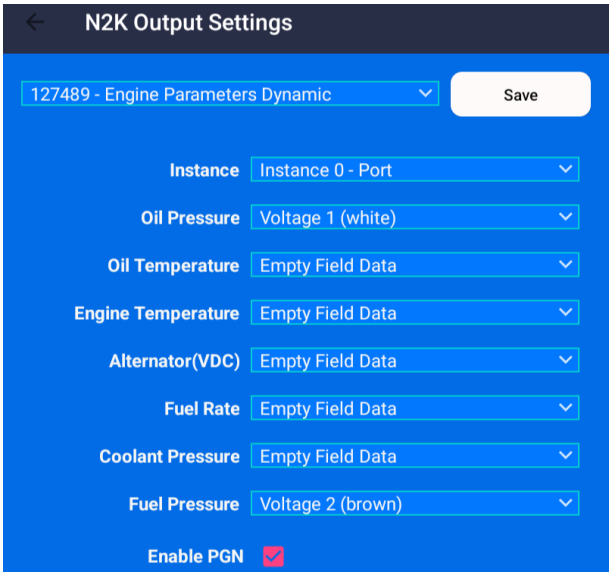

Figure 12 - Output Selection

5. Tick the Enable PGN checkbox to activate the selected PGN.
6. Click Save to apply the new configuration settings to the device.
7. Repower the A037M to ensure the updated settings take effect.

Finally, click 'Save' to store the new settings to your device and repower the A037M. Now, the pressure sensor is ready for use.

5.3 Tacho Input (RPM)

The A037M supports one RPM (Revolutions Per Minute) input via its tacho line. This input allows the device to read engine RPM data from a variety of engine signal sources.

The RPM signal can typically be obtained from engine components such as the ignition coil, alternator output, or an electronic pulse sender. The A037M is compatible with most of these sources, but the wiring method may vary depending on the signal type and engine configuration.

5.3.1 Ignition Coil

The following diagram shows how to connect the A037M to an ignition coil or alternator output signal or a single wire flowmeter. Connect the negative connection of the ignition coil to the RPM. And connect GND to GND of A037M. If there is only one wire from ignition coil or alternator, then just don't connect this.

Single wire (negative connection) is sufficient.

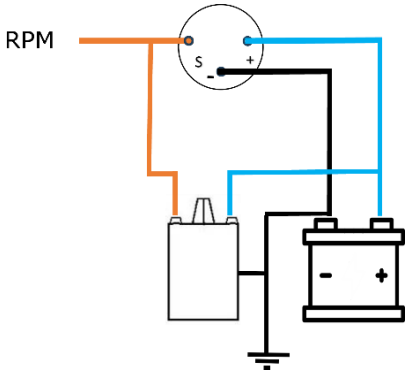

Figure 13 - Ignition coil wiring

5.3.2 Alternator

Connect the Tacho (also called AC Tap or marked as "W") connection of the alternator to the A037M RPM input. Connect GND to GND of A037M if applicable.

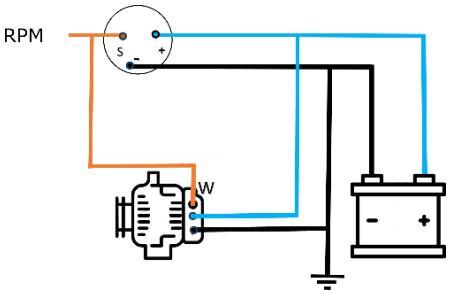

Figure 14 - Alternator wiring

5.3.3 Hall Effect and Electronic Pulse Senders

Connect the signal line of the sender to the RPM on the A037M and connect GND to GND pinout of A037M.

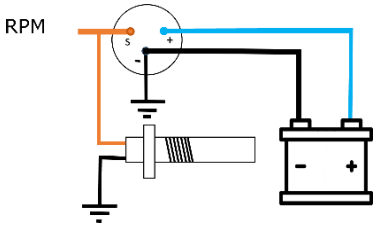

Figure 15 - Hall Effect & Electronics Pulse sensor wiring

If the RPM function will not be used, the red RPM wire must be connected to the battery's GND, and the corresponding PGN must be disabled in the output configuration.

5.4 Tacho Input calibration

Before using the tacho input, it must be calibrated using the A037M configuration tool. Below is an example of how to set up one of the RPM inputs with an electronic pulse sender.

In this example, the engine is running at 1800 RPM and the measured tacho input signal is 30 Hz. This means the engine or tacho sender is outputting a 30 Hz signal at 1800 RPM.

1. Click on the 'Input Pinout Settings' tab. From the dropdown menu, select the 'RPM' option corresponding to the pin where the sensor is connected.
2. The Physic Variable and Units fields will be filled in automatically and cannot be edited. Enter the engine's minimum and maximum RPM values. For Sensor Type, select '-Sensors-' from the list.
3. Start your engine and keep it running at a stable speed.
4. Click the Measure button, the configuration tool will display the pulse value (Hz) received from the engine/Tacho. In this example, the signal is measured at 30 Hz while the engine is running at 1800 RPM. This indicates that a 30 Hz signal corresponds to 1800 RPM. In the 'Data Output Set' section, set a marker of 30 (Hz) and a corresponding value of 1800 (RPM).
5. Repeat the above step multiple times to get a few more marker/value pair. In most cases, you will find these values are in liner patten. For example, when the engine runs at 3000 RPM, the output pulse is 3000/minutes(50Hz).
6. Fill above value pair into 'Data Output Set' and put '0' and '0' in the first line and calculate the maximum value based on the above values using liner patten.

In many cases, you may find that step 5 is unnecessary. Instead, you can obtain the Tacho PPR (Pulses Per Revolution) from the engine datasheet, or a plaque affixed to the engine. From there, you can calculate the relationship between the marker and the value.
Below, you'll find a general rule that can serve as a reference, but it's advisable to verify this before finalizing the settings.

- For an ignition coil it can normally be counted as:
  PPR = (No. of cylinders × 2) / (No. of strokes × No. of ignition coils)
- For an Alternator ('W'. 'R' or 'AC') pinout connection it can be counted as:
  PPR = (Crank pulley diameter / Alternator pulley diameter) × (No. of poles in Alternator / 2)
- For a hall effect or inductive sensor, it is derived from the number of teeth on the flywheel: PPR = No. of teeth on flywheel

5.5 N2K Output Settings

Once the RPM input has been calibrated, the next step is to enable the appropriate NMEA 2000 PGN that carries the engine speed information. Follow the steps below to activate PGN 127488: Engine Rapid Update.

1. Click on the 'N2K Output Settings' tab in the configuration tool. From the dropdown list, select 'PGN 127488: Engine Rapid Update.'
2. Select Engine Instance
   - For the first engine, choose 'Instance 1 - Port'
   - For the second engine, select 'Instance 2 - Starboard', and so on.
3. Under Engine Speed, select the input pin that corresponds to the RPM signal. In this example, choose 'RPM Red' if the RPM signal is connected to the red wire.
4. If your engine provides Boost Pressure and/or Tilt/Trim information, you can include these in the PGN by selecting the relevant pinouts where these sensors are connected.
5. Tick the checkbox next to 'Enable PGN' and click Save to store the settings to the A037M.
6. Restart the A037M to activate the new configuration.

6 App Installation

The Android based app (.apk format) can be downloaded from Quark-elec website:

https://www.quark-elec.com/downloads/apps/

- You will be prompted to confirm the installation before the app begins installing. Please ensure your device is configured to allow installation from third-party (unknown) sources. You may also need to temporarily disable any app-blocking settings or security features that could prevent installation. This is required because the Android system, by default, blocks the installation of apps that are not downloaded from the Google Play Store. Rest assured, the A037M app has been thoroughly tested and have passed security checks to prevent any abnormal or unsafe behaviour.
  It is completely safe to install this app.

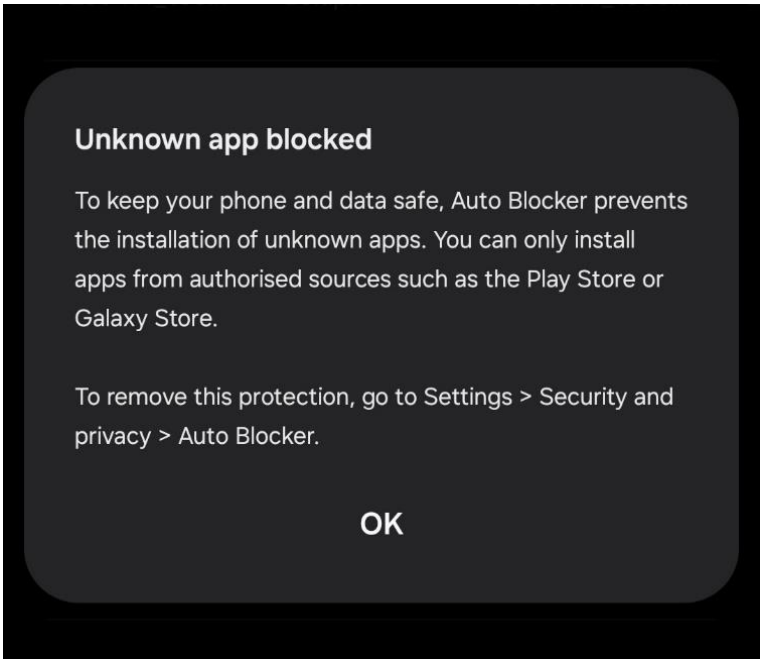

Figure 16 - Installation Blocked

- After disabling auto blocker settings on your device, you will be able to install the app from the downloaded .APK file.

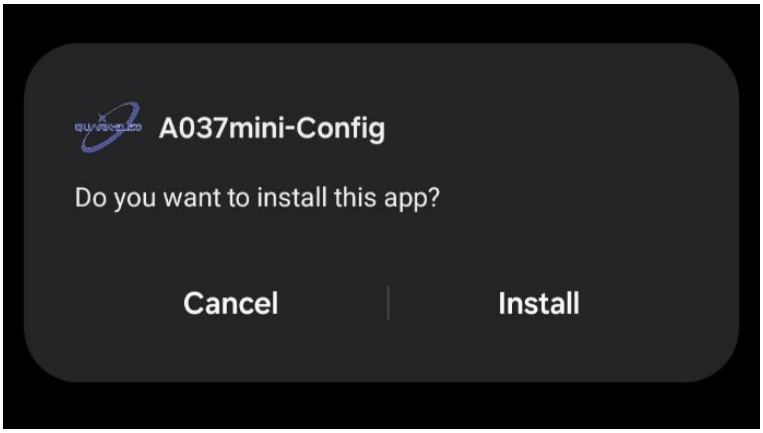

Figure 17 - Installation

- Please note that you may see the below message, expand the ‘More details’ section and then select ‘Install anyway’. If selecting OK, the app will not be installed.

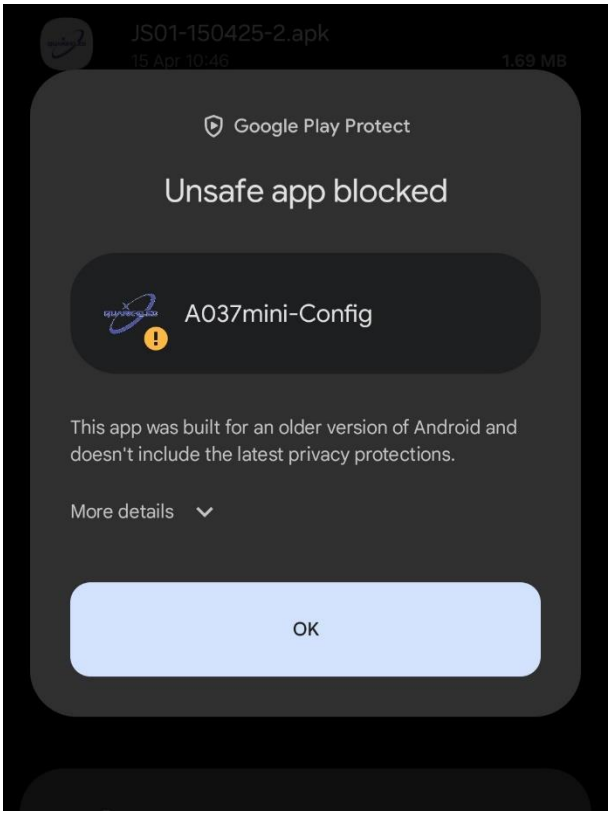

Figure 17 - Installation Prompt

- To help protect your Android device, we recommend disabling the option that allows the installation of apps from third-party (unknown) sources once the app has been successfully installed.
- After installation, launch the app. You will be prompted to scan for the A037M device. Ensure your A037M is powered by connecting it to an NMEA 2000 backbone. A steady LED light will indicate that the device is powered and operating correctly.

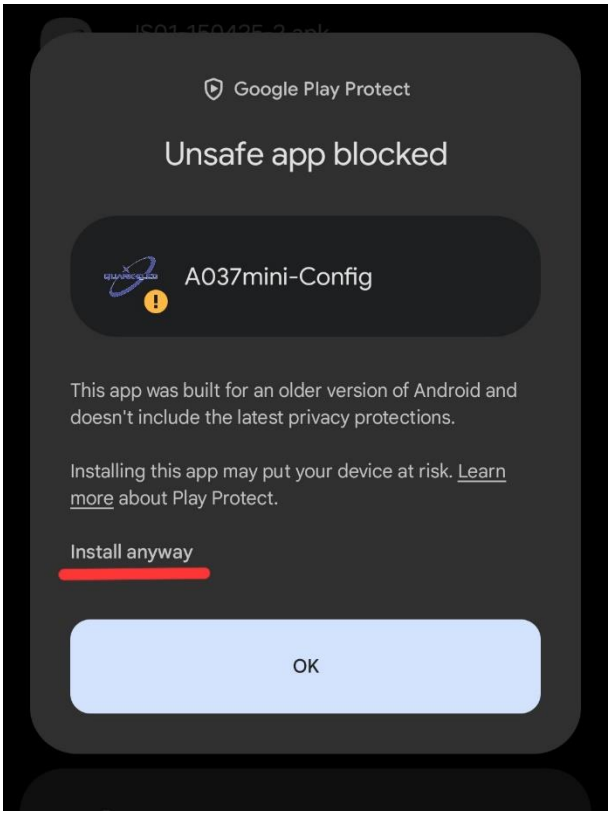

Figure 18 – Installation

7 Web Interface Configuration

The A037M can also be configured using the web-based configuration tool. This is especially helpful for customers who do not have an Android smartphone. The web interface currently supports Windows, Linux, and macOS platforms. However, it is not compatible with iPhones or iPads currently.

Please note that your device must have Bluetooth connectivity in order to connect to the A037M. The configuration process is very similar to that provided by the app. You can access the web interface at: https://www.quark-elec.com/doc/tool/A037Mini/

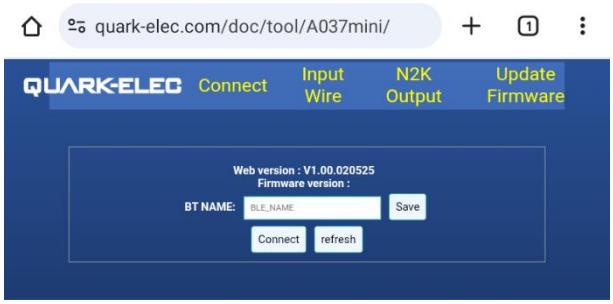

Figure 19 - Default Web Page

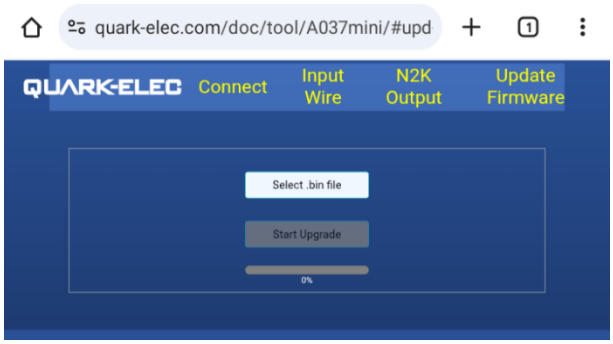

Figure 20 - Firmware Update Option

8 Firmware Update

The Firmware upgrade page offers a simple interface for future firmware updates. Firmware updates can be performed using either the Android app or the web interface.
We periodically release new firmware to introduce additional features and improve compatibility with various engine types. To check the current firmware version, navigate to the top of the configuration page. The latest firmware is available for download on our website.
https://www.quark-elec.com/downloads/firmware/

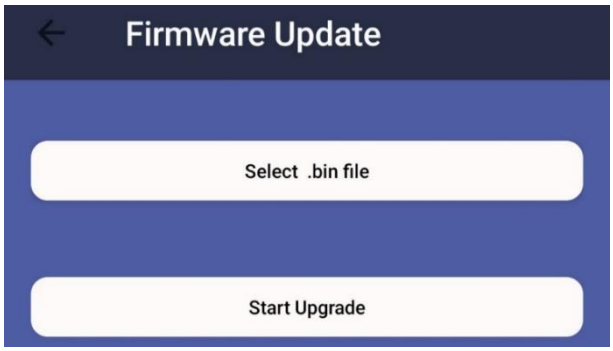

Figure 21 - Firmware Update

To upgrade the firmware, download the appropriate .bin file for your device and select 'Start Upgrade.' After the update is complete, power cycle the A037M to ensure it is running the latest firmware.

9 Specification

Item	Specification
DC supply	12V powered by NMEA 2000 cable
Operating temperature	-5°C to +55°C
Storage temperature	-25°C to +70°C
Resistance input	0 to 600 Ω
Voltage input	+/-35V
Resistance & Voltage input accuracy	≤ 1%
Tacho input impedance	≥100 Kohm
Tacho input pulse range	4 to 20kHz
Tacho accuracy	≤ 1%
Maximum supply current	45mA
Equivalent load	1 LEN
Bluetooth version	BLE 5.3
Environmental Protection	IP56

10 Limited Warranty and Notices

Quark-elec warrants this product to be free from defects in materials and manufacture for one year from the date of purchase. Quark-elec will, at its sole discretion, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour. The customer is, however, responsible for any transportation costs incurred in returning the unit to Quark-elec. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs. A returns number must be given before any unit is sent back for repair.
The above does not affect the statutory rights of the consumer.

Disclaimer

This product is designed to aid navigation and should be used to augment normal navigational procedures and practices. It is the user's responsibility to use this product prudently. Neither Quark-elec, nor their distributors or dealers accept responsibility or liability either to the products user or their estate for any accident, loss, injury, or damage whatsoever arising out of the use or of liability to use this product.

Quark-elec products may be upgraded from time to time and future versions may therefore not correspond exactly with this manual. The manufacturer of this product disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

Document history

Issue	Date	Changes / Comments
1.0	14-05-2025	Initial release

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