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QUARK-ELEC JS01 NMEA 2000 Gateway

Specifications

- Product Name: Quark-elec JS01 J1939 to NMEA 2000 Gateway
- Converts J1939 Engine Data to NMEA 2000 Protocol
- Version: V1.00
- Dimensions: Refer to Figure 2 in manual for exact dimensions

Features

- Seamlessly converts essential engine data from J1939 interface to the NMEA 2000 network
- Broad compatibility with most SAE J1939-compliant engine interfaces
- Plug-and-play installation – no complex setup required
- Read-only on J1939 interface, does not affect existing engine control or status systems
- Wireless configuration and live data viewing via dedicated Android app
- Integrated status LED for clear operational feedback
- Galvanic opto-isolation between J1939 and NMEA 2000 networks
- Pre-installed NMEA 2000 drop cable for fast, hassle-free installation
- Adjustable instance number to support multi-engine vessel installations

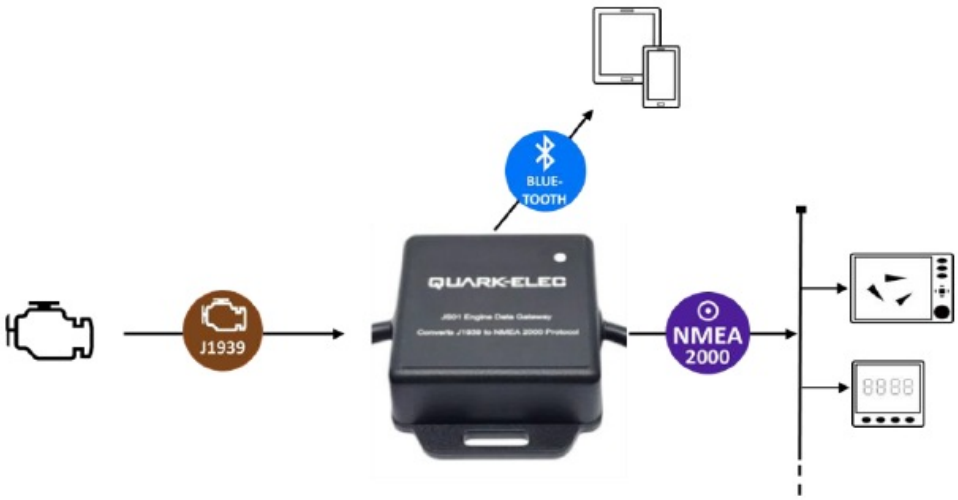


Figure 1: Example setup

Introduction

- The JS01 is designed for use in marine environments and provides a simple, effective way to integrate SAE J1939-compatible devices into an NMEA 2000® network. It enables the transmission of standard J1939 engine, transmission, and genset data onto the NMEA 2000 network, making critical engine information available throughout the vessel.
- By connecting directly to the J1939 network of compatible engines, transmissions, or gensets, the JS01 converts essential data such as engine speed, operating hours, fuel level, oil temperature, and gear ratio. This information is then made available on multifunction displays and other NMEA 2000 devices onboard.
- The J1939 interface is read-only and optically isolated, ensuring that it does not interfere with existing engine control systems and eliminating ground loop issues. The device includes status LEDs that indicate when J1939 messages are successfully converted and transmitted to the NMEA 2000 network.
- No setup is required for basic operation. However, if you’re monitoring multiple engines or would like to view live data via smartphone, the JS01 can be wirelessly configured using the dedicated Android app. Through the app, users can assign instance numbers and access real-time engine performance data with ease.

Mounting

- The JS01 is designed for use in commercial, leisure, and fishing vessels. It is maintenance-free and built for long-term reliability. When selecting an installation

location, choose a dry area that is protected from water exposure.

- Although the internal components are sealed with waterproof potting, the device may still be damaged if the cable ends come into contact with water. To ensure optimal performance and longevity, avoid installing the unit in areas where it may be submerged or exposed to excessive moisture.

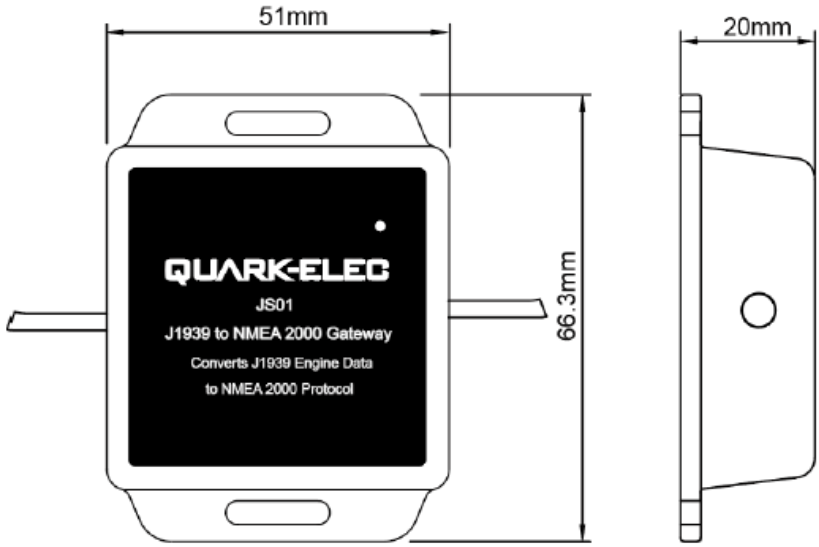


Figure 2: JS01 Dimension in mm

Connecting

Disconnect all power sources before connecting your equipment!

Connecting to the NMEA 2000 network

- The JS01 is pre-fitted with a five-core screened cable for the NMEA 2000 connection, fitted with a male micro-fit connector. Simply connect the cable to the NMEA 2000 network backbone or using a T-piece connector.

Figure 3: Pin NMEA 2000 male micro-fit connection

- The main communication channel of an NMEA 2000 network is an NMEA 2000 backbone to which
- NMEA 2000 devices are connected. The NMEA 2000 backbone must be powered from a stable 12V DC power supply and always requires two termination resistors.
- Please note the JS01 is powered by the NMEA 2000 network.

Connecting to Engine Network (SAE J1939 interface)

- SAE J1939 is a set of standards defined by the Society of Automotive Engineers (SAE). It is widely used in automobiles, heavy-duty vehicles, industrial engines, generators, and inboard marine engines. J1939 builds on the CAN bus by providing a higher-layer protocol that defines message formats, addressing, and error handling. J1939 serving as the “language” for communication, while the CAN bus provides the physical connection.
- Different equipment may use various types of CAN bus connectors. The JS01 uses Deutsch DT04-6P and DT06-6S connectors, which are known for their reliability and are widely used in marine inboard engines. These connectors were chosen to ensure secure, robust connections in demanding marine environments. If your engine uses a different connector type, an appropriate adapter will be required.
- The DT04-6P and DT06-6S connectors are pin-to-pin connected. This design allows the JS01 to integrate into an existing CAN bus system without disrupting or affecting any current connections.

The JS01 unit connects via three wires:

- **Pin 1:** CAN Low
- **Pin 3:** CAN High
- **Pin 4:** Ground

Please double-check your wiring to ensure no incorrect connections are made. The JS01 draws power from the NMEA 2000 bus, so no 12V need to be connected.

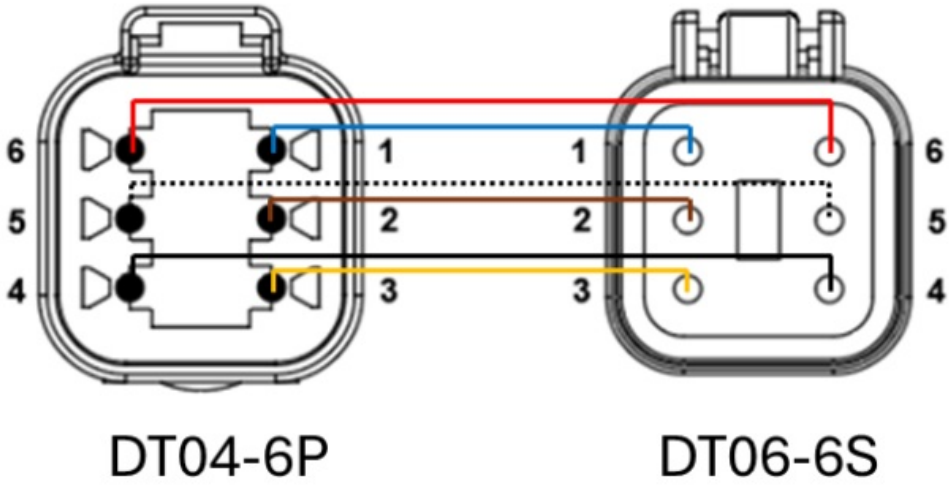


Figure 4 J1939 connector

	DT04-6P	**DT06-6S**
Pin 1	CAN LOW	CAN LOW
Pin 2	N/A	N/A
Pin 3	CAN HIGH	CAN HIGH
Pin 4	GROUND	GROUND
Pin 5	N/A	N/A
Pin 6	N/A	N/A

LED indication

The JS01 features a green LED on the front panel to indicate device status:

- **Power-Up**: After powering on, the LED will remain steady once the initialization process is complete.
- **Data Transmission**: The LED will flash to indicate that data is actively passing through the device.

Configuration

- The JS01 is a plug-and-play device that requires no initial configuration before

connecting to an NMEA 2000 network.

- However, if you wish to view engine data or adjust the instance number to support multiple engines, you will need to use the JS01 Config App on an Android tablet or mobile device. The configuration tool also allows you to filter engine error and warning messages transmitted to the NMEA 2000 network.

App

- The Android based app (.apk format) can be downloaded from Quark-elec website: https://www.quark-elec.com/downloads/apps/

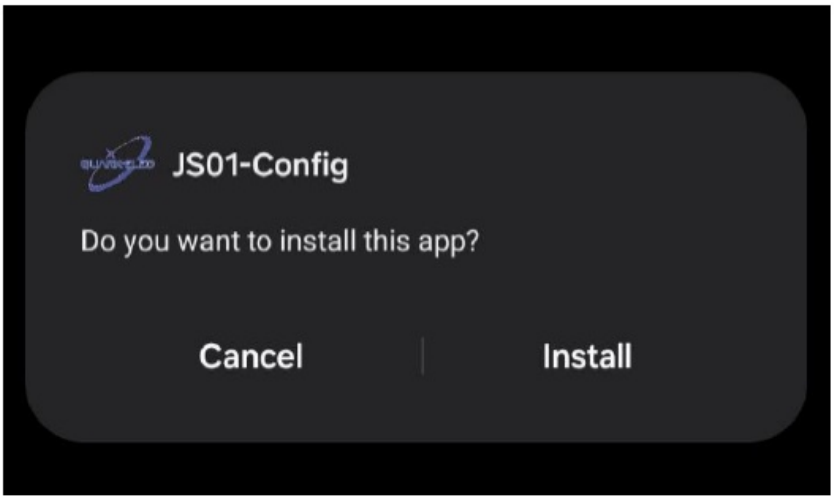


Figure 5 App Install

- You will be asked to confirm the installation of the app before starting the installation process. Please ensure that your device allows installation of apps from third-party (unknown) sources. You may also need to temporarily disable any app-blocking settings on your device.
- 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 JS01 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.

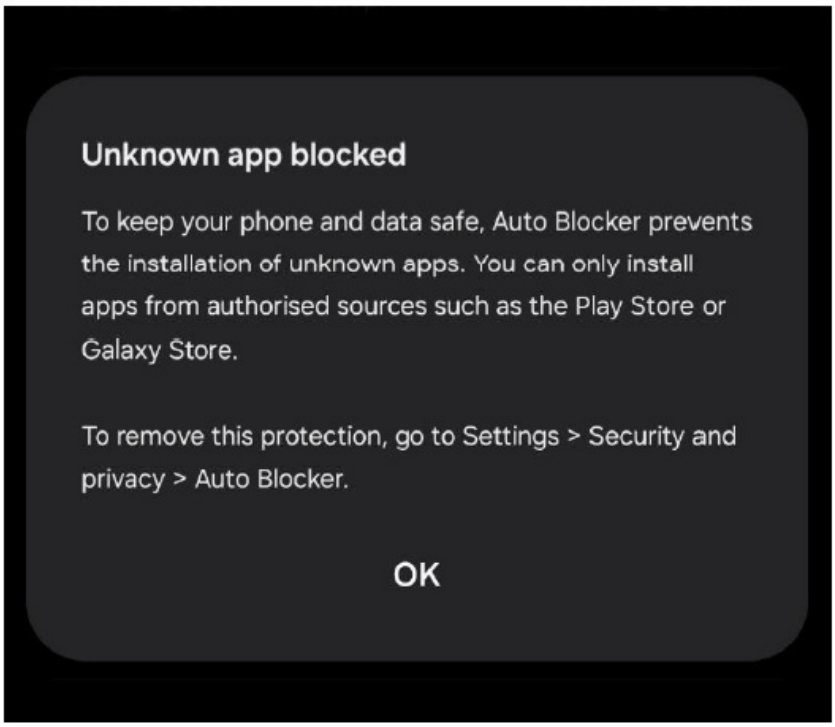


Figure 6 App Blocked

- Disabling auto blocker on your device to allow installation.

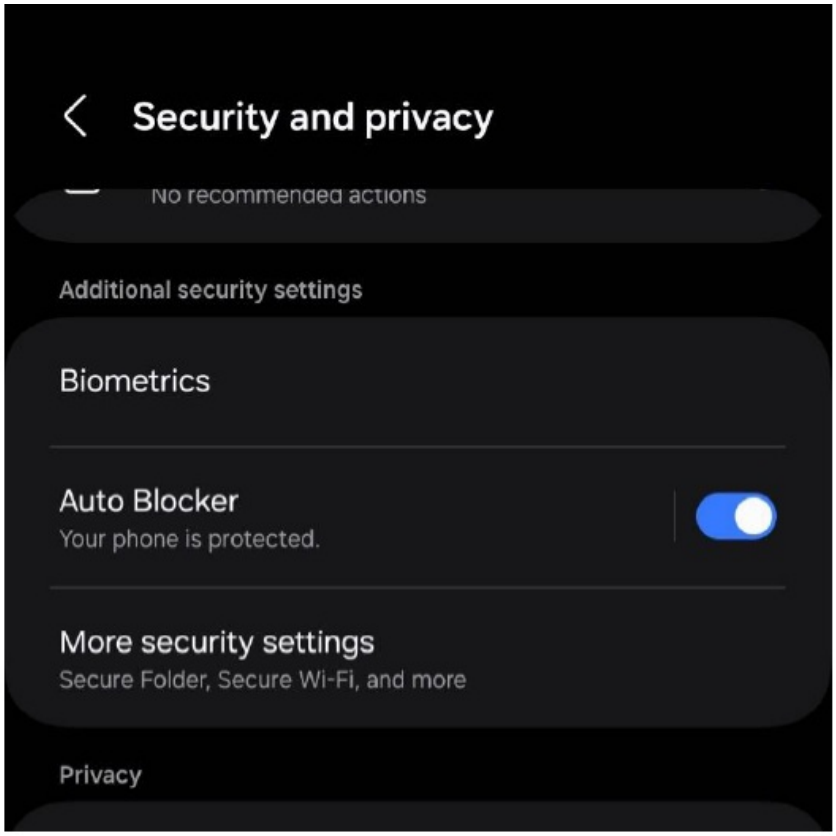
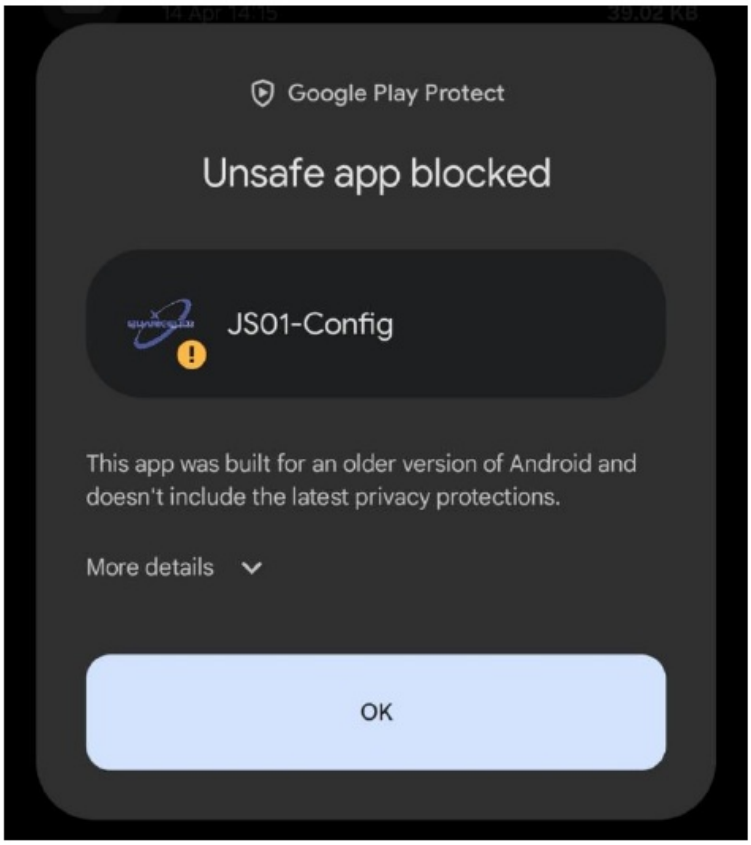


Figure 7 Disable Auto Blocker

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



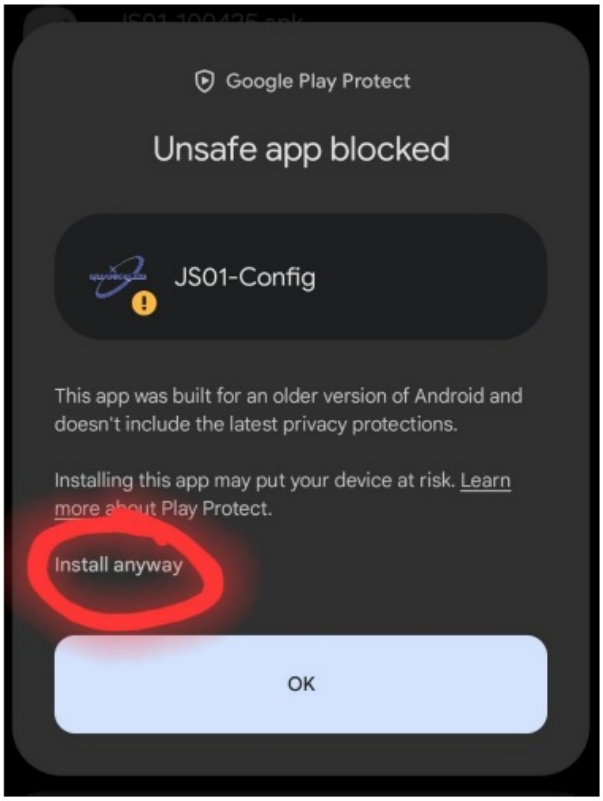


Figure 8 Installation Blocked

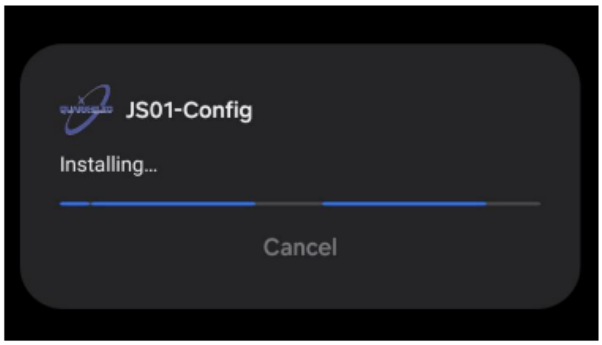


Figure 9 Installing

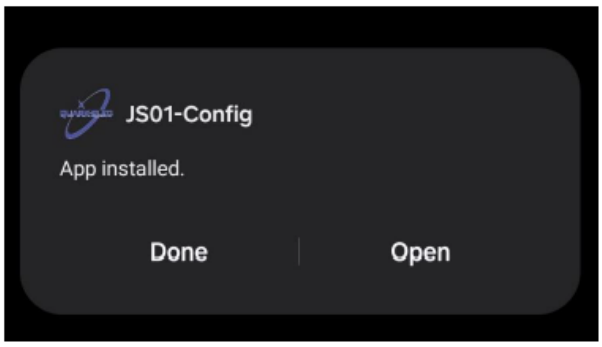


Figure 10 Installation Complete

- By now, the JS01 App has been installed. 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 JS01 device. Ensure your JS01 is powered by connecting it to an NMEA 2000 backbone. A steady LED light will indicate that the device is powered and operating correctly.
- The app will automatically scan for available JS01 devices after clicking ‘start scanning’ button. Once detected, an option to connect will be displayed.

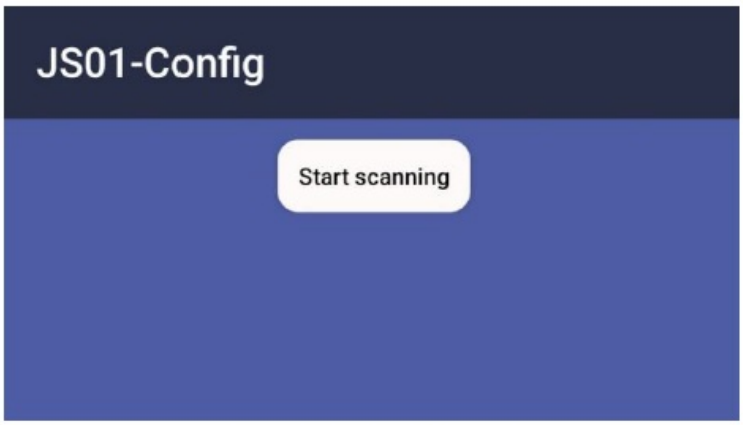


Figure 11 App Home Screen

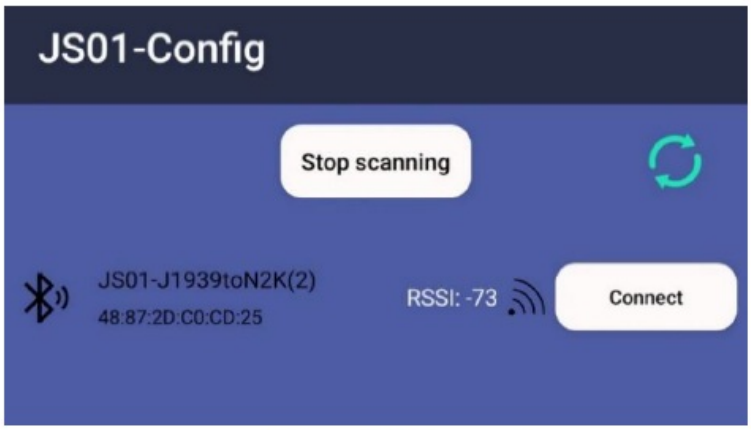


Figure 12 Connection

- Select ‘Connect’ to complete the connection process. And then you will see blow interface to allows you either disconnect the connection or enter the ‘Config’ interface.

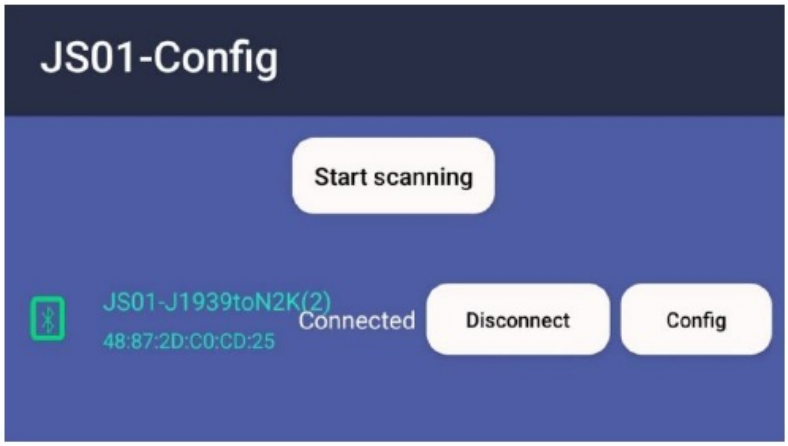


Figure 13 Connected successfully

- In the configuration interface, you can change the device instance number to support multi-engine vessel installations. You can also set filters for warning or diagnostic messages transmitted from the J1939 interface to the NMEA 2000 network. As shipped from the factory, the JS01 does not transmit J1939 warning/diagnostic messages over the NMEA 2000® network. Additionally, this interface provides access to view output data and navigate to the firmware upgrade page via the available buttons.
- Instance number, also called Device Instance or Data Instance is used to uniquely identify multiple devices of the same type on the same network, particularly when they transmit the same PGNs. Modifying the instance number on the JS01 allows users to assign a unique identifier to each unit, ensuring accurate data representation when multiple JS01 devices are connected to different engines on the vessel. After making modifications, click ‘Config’ to save the changes. You will need to restart the JS01 for the changes to take effect. The new instance number will be displayed in brackets next to the JS01 device name on this configuration page.

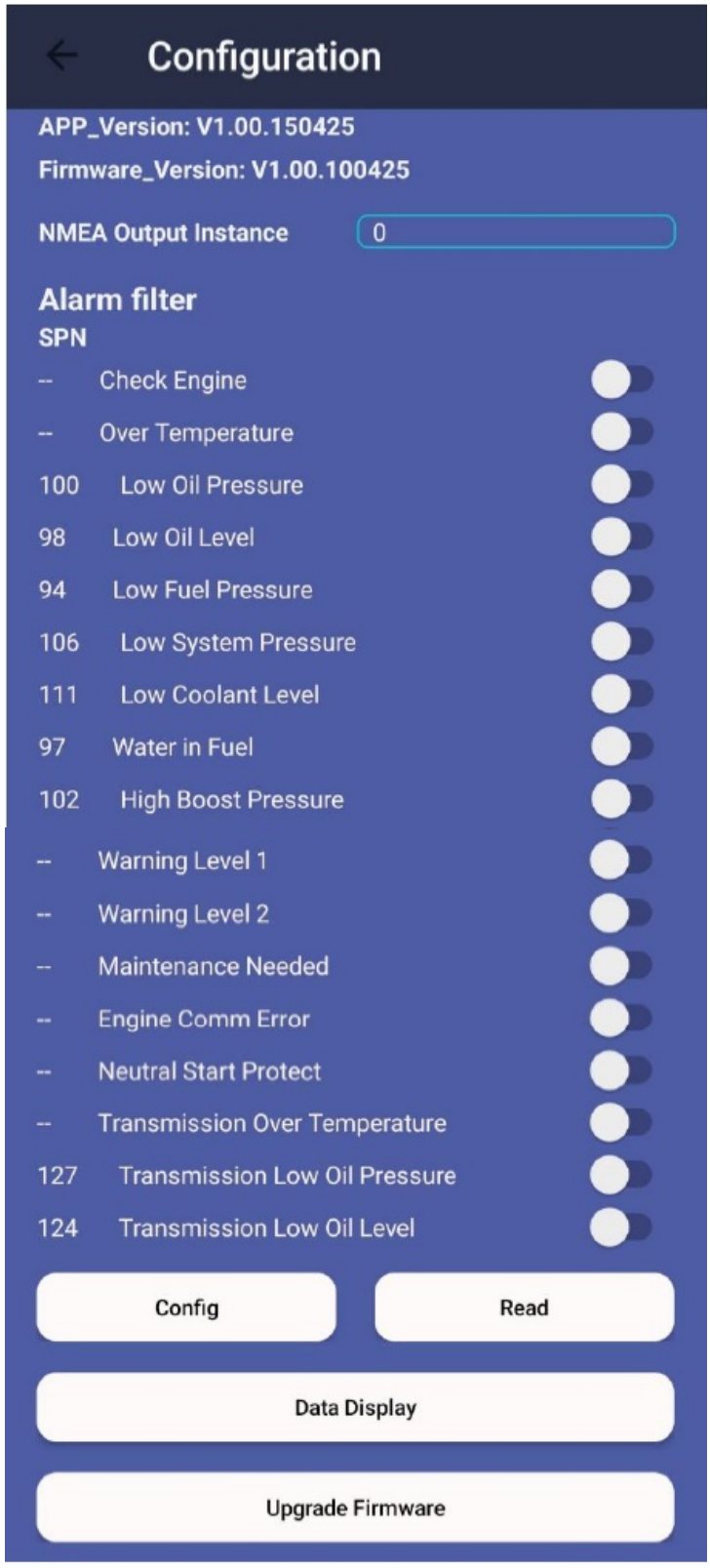


Figure 14 Configuration Page

- The Data Display page shows live source data received from the J1939 interface, which is being converted to NMEA 2000 format. This page is useful for debugging purposes and for monitoring engine performance in real time.

Figure 15 Data Display

- The Firmware upgrade page offers a simple interface for future firmware updates. From time to time, we 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 16 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 JS01 to ensure it is running the latest firmware.

Conversion Lists

The following tables list the supported NMEA 2000 PGN’s and related J1939 messages.

J1939 SPN/PGN	Description	NMEA2000PGN
92/61443(EEC2)	Engine Percent Load at Current Speed	127489
190/61444(EEC1)	Engine Speed	127488
513/61444(EEC1)	Actual Engine-Percent Torque	127489
523/61445(ETC2)	Transmission Current Gear	127493
247/65253(HOURS)	Engine Total Hours of Operation	127489
110/65262(ET1)	Engine Coolant Temperature	127489
175/65262(ET1)	Engine Oil Temperature	127489
109/65263(ET1)	Engine Coolant Pressure	127489
100/65263(EFL_P1)	Engine Oil Pressure	127489
94/65263(EFL_P1)	Engine Fuel Delivery Pressure	127489/130314
183/65266(LFE)	Engine Fuel Rate	127489
184/65266(LFE)	Engine Instantaneous Fuel Economy	127497
173/65270(IC1)	Engine Exhaust Gas Temp	130316
102/65270(IC1)	Engine Turbocharger Boost Pressure	127488
115/65271(VEP1)	Alternator (Battery) Current	127508
167/65271(VEP1)	Alternator Potential (Voltage)	127489
168/65271(VEP1)	Battery Potential (Voltage)	127508
127/65272(TRF1)	Transmission Oil Pressure	127493
177/65272(TRF1)	Transmission oil temperature	127493

96/65276(DD)	Fuel level	127505

Specification

Item	Specification
DC supply	12.0 to 15.0 V
Average supply current	34mA
Maximum supply current	60mA
CAN J1939-Network plug	Support Deutsch DT04-6P and Deutsch DT06-6S
LEN	2
Operating Temperature	-20°C to +55°C
Storage Temperature	-30°C to +70°C
Recommended Humidity	0 – 93% RH

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	09-04-2025	Initial release

- Quark-elec (UK)
- Unit 3, Clare Hall
- St. Ives Business Park St Ives,
- Cambridgeshire PE27 4WY
- https://www.quark-elec.com

FAQ

Q: Is setup required for basic operation of the JS01?

A: No, basic operation does not require any setup. However, advanced features like monitoring multiple engines or accessing real-time data via smartphone may require wireless configuration using the dedicated Android app.

Documents / Resources

	QUARK-ELEC JS01 NMEA 2000 Gateway [pdf] User Manual JS01, JS01 NMEA 2000 Gateway, JS01, NMEA 2000 Gateway, 2000 Gateway, Gateway

References

- User Manual

QUARK-ELEC

2000 Gateway, gateway, JS01, JS01 NMEA 2000 Gateway, NMEA 2000 Gateway, QUARK-ELEC

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