



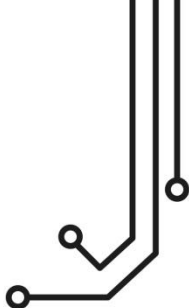
SAIL BOAT



SPORT FISHING



MOTOR BOAT



J1939 DOCTOR DIAGNOSTIC TOOL

Installation and instruction Manual



1. Introduction

Congratulations on the purchase of your J1939 Doctor Wireless J1939 Diagnostic and Test tool. In addition to this quick start guide, we recommend watching this video <https://www.youtube.com/watch?v=HfuUEdKeBX4>



This product is designed for use by Technical Dealers and Installers with knowledge/experience of J1939, Digital Yacht cannot provide technical support or training on J1939 networking.

2. Before you start

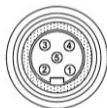
To use your J1939 Doctor you will need:

- A wireless device with web browser i.e. Smart Phone, Tablet or Laptop
- A spare “T-Piece” connection on a working/powered J1939 network.

3. Installation

3.1 – Connecting to J1939 Network

- The J1939 Doctor has a male M12 Device Net (NMEA 2000) connector.
- If you are using the J1939 Doctor to check a J1939 network connected to a Garmin MFD’s J1939 connector, then you can unplug the J1939 cable from the MFD and plug the J1939 Doctor directly into this cable.
- J1939 Doctor expects to take it’s power (<100mA @ 12v) from the J1939 network. If the J1939 network does not have its own supply, it will be necessary to find a suitable 12v or 24v power supply.
- There is no standard J1939 connector, so it maybe necessary to construct an adaptor cable. The J1939 Doctor’s cable is a normal NMEA 2000 cable, with the standard pin out and wire colours.



Female View From Front

- | | | | |
|----|--------|---|-------------------|
| 1) | SHIELD | = | Shield (Ground) |
| 2) | RED | = | +12V Power Supply |
| 3) | BLACK | = | -0v Power Supply |
| 4) | WHITE | = | + Data |
| 5) | BLUE | = | - Data |

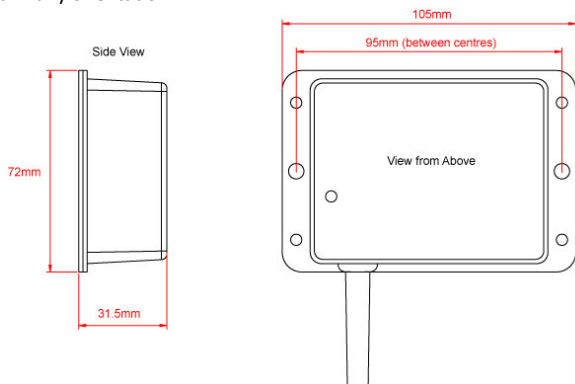


Male View From Front

3.2 – Mounting

The J1939 Doctor is IP54 rated (water resistant) and care should be taken when operating it, to ensure it is not submerged in water.

J1939 Doctor is primarily designed to be portable, for use on different installations, as part of a marine technician's tool kit. However, the J1939 Doctor can be permanently installed to a flat bulkhead using suitable fixings. J1939 Doctor can be installed in any orientation.



3.3 – Powering J1939 Doctor

- Apply power to the J1939 network and the J1939 Doctor LEDs should start to illuminate or flash, as per Table 1...

Condition	STATUS LED (Green)	DATA IN LED (Yellow)	ERROR LED (Red)	DATA OUT LED (Yellow)	LINK LED (Green)
ON (Solid)	STA WiFi Connected		System Error		TCP Connection
Fast Blink	No Wi-Fi connection	Data	Data Error	Data	
Slow Blink		Data	Network Error	Data	UDP Connection
OFF	AP WiFi connected	No Data From N2K	All OK	No Data From App	No Power

Table 1

3.4 – Setting up the Wireless Network

- By default, J1939 Doctor' creates a wireless network (Access Point), with Name (SSID) = “**J1939Doctor-xxxx**” and Password = “**PASS-xxxx**”, where xxxx is a four digit code, unique to your device.
- To connect to J1939 Doctor you need to scan for wireless networks, find it, select it and then enter the default password when prompted.
- As soon as a wireless connection is established, your mobile device should indicate that it is connected, but with no internet and you may have to confirm that you want to stay connected.

3.5 – Accessing the Web Interface

- The J1939 Doctor has a built-in web interface, consisting of a series of pages that provide key information on the status of the J1939 network.
- A wireless device, connected to J1939 Doctor, can access its web interface in a browser at <http://192.168.1.1> or <http://J1939Doctor.local> which should bring up the J1939 Doctor home page as shown in Figure 1.
- **IMPORTANT** – Only one device and one browser session at a time should be operated, otherwise strange conflicting commands can occur.

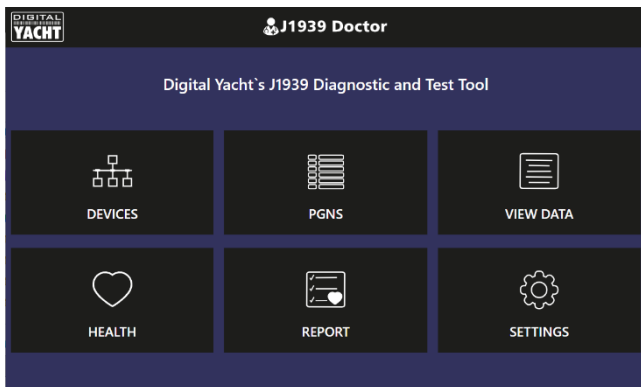
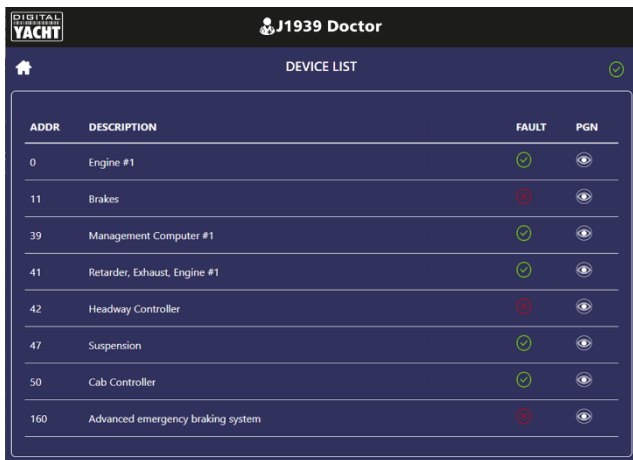


Figure 1

3.6 – Devices Page

- To display a list of all devices on the network, click on the **Devices** icon/button and you should see a page, similar to Figure 2.

- To view the PGNs (Data) that a specific device is transmitting, click the “Eye” icon at the end of its row and a pop-up will appear as shown in Figure 3.



The screenshot shows the 'J1939 Doctor' application with a 'DEVICE LIST' screen. The interface has a dark blue theme. At the top, there's a header with the 'DIGITAL YACHT' logo and the title 'J1939 Doctor'. Below the header is a navigation bar with a home icon and a green checkmark. The main content area contains a table with four columns: ADDR, DESCRIPTION, FAULT, and PGN. The table lists eight devices with their addresses, descriptions, fault status (indicated by green checkmarks or red crosses), and PGN icons (eye icons).

ADDR	DESCRIPTION	FAULT	PGN
0	Engine #1	✓	👁
11	Brakes	✗	👁
39	Management Computer #1	✓	👁
41	Retarder, Exhaust, Engine #1	✓	👁
42	Headway Controller	✗	👁
47	Suspension	✓	👁
50	Cab Controller	✓	👁
160	Advanced emergency braking system	✗	👁

Figure 2



The screenshot shows a pop-up window titled 'Address 39'. It contains a table with two columns: PGN and DESCRIPTION. The table lists ten entries, each with a PGN number and a corresponding description.

PGN	DESCRIPTION
65242	Software Identification
59904	ISO Request
57344	Cab Message 1
65198	Air Supply Pressure
65105	Adaptive Cruise Control, Operator Input
61440	Electronic Retarder Controller 1
65360	Proprietary PGN
65265	Cruise Control/Vehicle Speed
61441	Electronic Brake Controller 1
65333	Proprietary PGN

Figure 3

- To display the fault codes being transmitted by a specific device, click the Fault Red Cross icon and the pop-up shown in Figure 4 will be displayed.

- The DM1 Table shows the currently active fault codes, while the DM2 Table shows the historical faults. You can request either table using the two request buttons or clear the fault codes by clicking the **Clear DTC Codes** button.
- NOTE - if you clear the currently active fault codes, but the fault condition is still present, they will re-appear when the next PGN transmission is received.

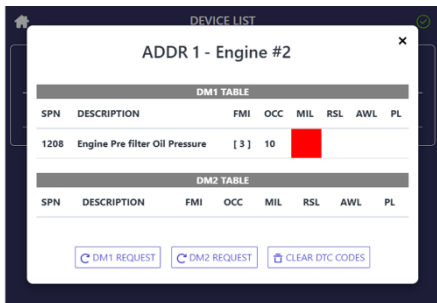


Figure 4

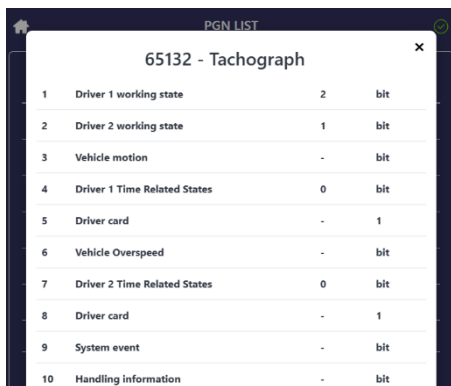
3.7 – PGNS Page

- To display all the PGNs being received, click on the **PGNS** icon/button and the table in Figure 5 will be displayed.

PGN		SRC	DST	DESCRIPTION	TIME
65132	238	255	Tachograph	859.36	
61441	39	255	Electronic Brake Controller 1	859.32	
65265	39	255	Cruise Control/Vehicle Speed	859.32	
65198	39	255	Air Supply Pressure	853.42	
57344	39	255	Cab Message 1	853.42	
65105	39	255	Adaptive Cruise Control, Operator Input	859.36	
65360	39	255	Proprietary PGN	859.32	

Figure 5

- To view the data of a specific PGN, click on the “Info” icon at the end of that PGN’s row and the pop-up shown in Figure 6 will be displayed.



65132 - Tachograph		
1	Driver 1 working state	bit
2	Driver 2 working state	1 bit
3	Vehicle motion	- bit
4	Driver 1 Time Related States	0 bit
5	Driver card	- 1
6	Vehicle Overspeed	- bit
7	Driver 2 Time Related States	0 bit
8	Driver card	- 1
9	System event	- bit
10	Handling information	- bit

Figure 6

3.8 – View Data Page

- To display and log the raw J1939 data being received, click on the **View Data** icon/button and the page in Figure 7 will be displayed.

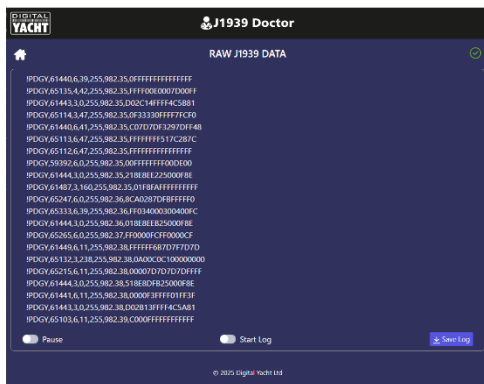


Figure 7

3.9 – Health Page

- To test the Health of the J1939 network click on the **Health** icon/button and the screen in Figure 8 will be displayed.



Figure 8

3.10 – Report Page

- To save/print the J1939 Doctor test report for the network click on the **Report** icon/button and the screen in Figure 9 will be displayed.

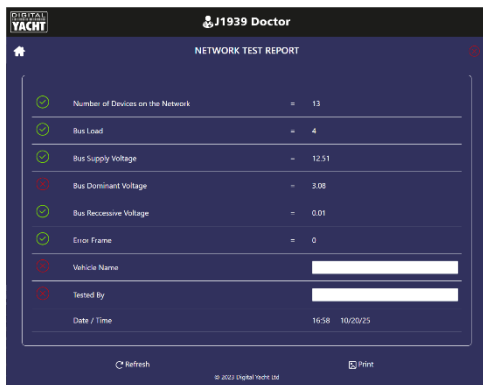


Figure 9

4. Settings

By default J1939 Doctor creates its own wireless network but if you are going to be using it in a workshop environment, where there is already a wireless network, you can make J1939 Doctor join this network rather than create its own.

From the Home page, click the **Settings** icon/button and in the Network Settings section set the WiFi Mode switch to **STA** mode, see Figure 10.

Click the **Scan** button to scan for available wireless networks, select the network you want to join from the drop-down list, enter the wireless password and click the **Update Settings** button.

DIGITAL YACHT J1939 Doctor

SETTINGS

Network Settings

ACCESS POINT

LOCAL SSID: J1939Doctor-2998

PASSWORD: *****

LOCAL IP: 192.168.1.1

NETMASK: 255.255.255.0

WIFI MODE: AP STA Load Defaults

WIFI CHANNEL: 11

Update Settings

Firmware update

Only use J1939Doctor_OTA_x_x.bin file provided by Digital Yacht

Choose File No file chosen

Upload Firmware

Product Serial Number: CA2998

Firmware version: 1.00.00

Gateway / W version: 1.00

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Figure 10

J1939 Doctor will now display a window saying that the Wi-Fi settings have been changed and the unit will now reboot. On rebooting it will try to join the selected wireless network and if successful the Status LED will stop flashing a few seconds after booting up and stay permanently ON.

If you have any problems connecting to another network, press and hold the Reset button on the bottom edge of the unit for >10 seconds and J1939 Doctor will reset to factory defaults.

Also, on the Settings page are the details of the Gateway and Wireless firmware versions and the free memory value. Updates to the wireless firmware can be done via the web interface – contact support@digitalyacht.co.uk for more information.