

Quick Start Guide

W2K-1

NMEA 2000 Wi-Fi Gateway



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Product Guarantee

This product comes with a three year 'return to base' guarantee. If you suspect that the unit is faulty please refer to the Troubleshooting Section of the User Manual before contacting support.

It is a requirement of the guarantee that all installations of electronic equipment follow the NMEA 0400 specification. Any connection to a battery or power supply must meet the mandatory essential safety requirements that may be imposed by local regulatory agencies.

Actisense products are intended for use in a marine environment, primarily for below deck use. If a product is to be used in a more severe environment, such use may be considered misuse under the Active Research Ltd guarantee.

Product Disposal

Please consider the environment when disposing of this product. It should be disposed of according to the European WEEE Directive, or according to the applicable local regulations for the disposal of electrical equipment. The product packaging is recyclable.

All features and specifications may change without notice

Installation Warnings

All warnings and notices must be followed to ensure the correct operation of the W2K-1. Incorrect installation may invalidate the guarantee.

It is highly recommended that all of the installation instructions are read before commencing the installation.

There are important warnings and notes throughout the manual that should be considered before the installation is attempted.

Warning 1: Installation and Operation

This product must be installed and operated in accordance with the instructions provided. Failure to do so could result in personal injury, damage to your boat and/or poor product performance.

Warning 2: Installation Code of Practice

When wiring the power supply to the W2K-1 ensure the isolation switch is off. Wiring the W2K-1 while the connection is live may damage the W2K-1 and is in breach of the guarantee. Any connection to a battery or power supply must meet the mandatory essential safety requirements that may be imposed by local regulatory agencies, this should include suitable fusing.
 All wiring should be in accordance with the requirements of the NMEA 0400 installation specification.

Warning 3: Mounting Requirements (See also : "Mounting the W2K-1" on page 15)

Select a flat location to mount the W2K-1. Mounting on a contoured surface may cause damage to the case. Do not mount the W2K-1 while the device is powered, or the cable harness is connected.

Warning 4: Safe Distance

This device should be installed and operated keeping a distance of at least 20cm between it and a persons body.

Software Updates

The W2K-1 unit has built-in firmware which is held in flash memory, allowing quick and easy upgrades using the the firmware update option on the web interface. It is highly recommended that the W2K-1 firmware is kept up to date.

The firmware version installed in the W2K-1 can be viewed on the web based info page, in the 'Main Application' section. Details of the latest W2K-1 firmware version released can be viewed on the Actisense website.

Regulatory & Safety Notices

USA: Federal Communications Commission (FCC) Statement

This device complies with FCC part 15 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, including interference that may cause undesired operation of the device.

FCC Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 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.

This device meets the FCC and IC requirements for RF exposure in public or uncontrolled environments.

Suppliers Declaration of Conformity

47 CFR § 2.1077 Compliance Information
 Unique Identifier : Actisense W2K-1
 Responsible Party - US Contact Information
 GEMECO Marine Accessories
 1141 S.Ron McNair Boulevard
 Lake City, SC 29560
 Phone : 803-693-0777 / Fax 803-693-0477
<https://www.gemeco.com/>

Canada: Industry Canada (IC) Statement

IC Notice to Users English/French in accordance with RSS GEN Issue 3:

This device complies with Industry Canada license 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.

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence(s).

Son utilisation est soumise à Les deux conditions suivantes:

1. cet appareil ne peut pas provoquer d'interférences et
2. cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada

European Union

Active Research Ltd hereby declares the radio equipment type W2K-1 is in compliance with Directive 2014/53/EU

The full text of the EU declaration of conformity is available at the following internet address :

www.actisense.com

The Actisense W2K-1 Wi-Fi Gateway

Thank you for purchasing this Actisense product. It has been designed and developed using our in-depth NMEA2000 know-how to give you many years of reliable and valuable service.

The W2K-1 is a compact and low-power NMEA 2000 to Wi-Fi Gateway with data logging. It transfers data from an NMEA 2000 backbone to any compatible device, (e.g. laptop, tablet or smartphone) connected to it via Wi-Fi.

It has built-in conversion of NMEA 2000 messages into NMEA 0183 sentences thus allowing a wide variety of vessel data (e.g. position, speed, course, wind speed, depth, engine data, AIS messages etc.) to be shared with NMEA 0183 compatible software applications running on connected devices.

Please refer to the full user manual which contains full instructions and can be downloaded directly from the W2K-1 (once connected) or from www.actisense.com

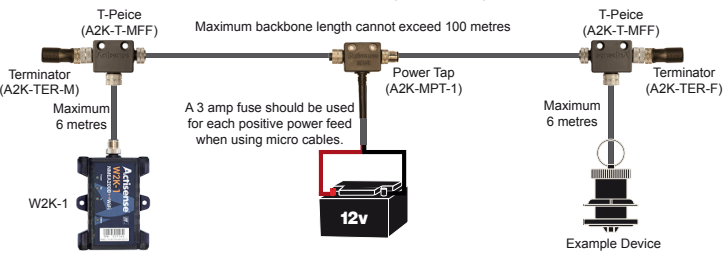
- This Quick Start Guide is arranged into the following sections
- Installing the W2K-1 onto an NMEA2000 Network
 - Connecting to the device using appropriate Wi-Fi settings
 - Configuration

The purpose of this Quick Start Guide is to simply let you get your new W2K-1 installed and connected as quickly as possible. The information contained here is not meant to constitute a full description of the workings of the W2K-1. Please view the user manual for further instructions.

Installing the W2K-1 onto an NMEA2000 Network

A correctly powered and terminated NMEA 2000 network is required before installing the W2K-1. The minimum requirement for any NMEA2000 network is as follows

- 1 : An Actisense SBN-1 (A NMEA 2000 self-contained network) or
- 2 : A power insertion point (MPT-1) + 2-off "T" pieces + 2-off termination resistors and
- 3 : A minimum of 2 NMEA2000 devices (Your new W2K-1 being one of them) (See below)



Powering the W2K-1

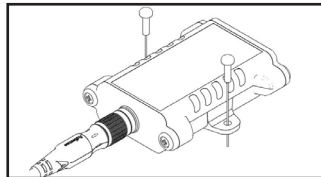
The W2K-1 receives its power from the NMEA 2000 backbone and is compatible with 12VDC and 24VDC supplies typically using 70mA (2 LEN) at 12 VDC. To avoid unnecessary voltage drops on your backbone, always try and install the W2K-1 close to the power insertion point. Once powered, the LEDs inside the case will illuminate. Refer to the 'Troubleshooting' section in the included manual for a full description of the W2K-1 LED behaviour.

The W2K-1 measures the bus voltage at its micro connector and reports this via:

- The NMEA2000 bus using PGN : 127508
- The Web Interface status page

Bulkhead Mounting

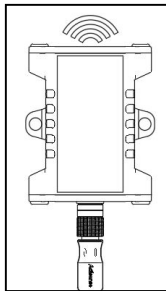
The W2K-1 can be secured to a bulkhead using the two screw holes on the side of the W2K-1 shown in the picture on the right. Screws are included with your W2K-1. Please refer to the user manual for further instructions relating to mounting positions for safe and reliable operation.



Warning: The W2K-1 should not be mounted within 5m of a compass or operated within 20cm of a human body. To avoid potential injury it should be mounted at a height of less than 2m from floor level.

The internal antenna is located at this end of the W2K-1. Keep clear of metal objects.

The W2K-1 has an internal antenna which is located on the end opposite to the NMEA 2000 connector and should not be mounted on a metal surface. To ensure best range it should be mounted vertically and centrally on the boat as high as possible, avoiding other metallic objects. See picture.



Set Up

The W2K-1 has a built-in, web based configuration tool compatible with the latest versions of all popular web browsers. To access it, a Wi-Fi connection is required between a compatible device and the W2K-1.

Connecting to Wi-Fi

When first powered up, the W2K-1 will act as an **Access Point**, and it will broadcast it's SSID as "w2k <serial number>". This ensures that, by default, every W2K-1 has a unique Access Point.

The serial number of your device can be found printed on labels, both on the front and rear of the case.
(e.g. If your serial number is **123456**, then your the SSID for your W2K-1 will be **w2k-123456**)

The default **Wi-Fi password** is printed on the rear of the device.

Note : the password is 8 characters consisting of 1...9, A...Z (excluding I & O), a...z (excluding l)

A spare password sticker is also provided which can be kept in a safe & convenient location to avoid having to physically access the W2K-1.(e.g. if more devices need to be connected to the W2K-1)

The W2K-1's SSID will be visible using the network settings (show available networks) of your PC, or usually under settings / connections / Wi-Fi on your mobile device. Selecting it will prompt a connection and request the user to enter the Wi-Fi password listed on the rear of the device. Once the password is entered, the Wi-Fi enabled PC or device should

connect within a few seconds (dependant on operating system).

Wi-Fi Modes

The W2K-1 can be used in either **Access Point mode** or **Client Mode** (also referred to as Station or STA mode) Both modes can also be used simultaneously under certain circumstances.

Access Point Mode : This is the default mode for the W2K-1 used for initial configuration. This mode can also be used where other Wi-Fi devices need to connect to / exchange data with the W2K-1 in the absence of an existing Wi-Fi network. The W2K-1 will, by default, use channel 1 in this mode.

Client Mode: This is where the W2K-1 will become a "client" on an existing Wi-Fi enabled network, enabling the W2K-1 to connect to / exchange data with other devices connected to that existing network. The W2K-1 will switch to the Wi-Fi channel of the client network in this mode.

Configuring the W2K-1

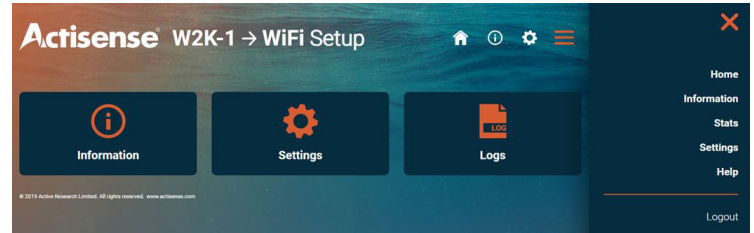
Make sure you have connected the the W2K-1 **Access Point** via Wi-Fi with your PC or device. You can now access the W2K-1 configuration page from any web browser. Enter the **IP address : 192.168.4.1** into the address bar and you will be presented with the W2K-1 home page.

Note : Any pages which allow configuration changes are password protected and will prompt the user to "Login"

The default login details for the W2k-1 configuration tool are :

Username : admin
Password : admin

Please consult the user manual for further information on configuring your W2K-1 Click "Help" on the WiFi Setup page shown below to download the user manual.



Trouble Shooting Guide

First level W2K-1 diagnostics / fault finding can be performed by observing the LED behavior.

The normal behavior of the W2K-1 LEDs is described in the table below. If the LEDs are not behaving as expected, this will indicate a fault in either the device connected to the W2K-1, the NMEA 2000 network, or the W2K-1 itself.

Some common checks to perform on the W2K-1 if the correct LED behaviour is not displayed:

- Connectors are properly inserted and secure
- If NMEA 2000 field fit connectors are used, all pins have been wired correctly and wires are terminated firmly.
- The NMEA2000 network is properly terminated at each end, with a 120ohm resistor. The network should not have more than two terminators. Make sure that any devices attached to the network do not contain any internal termination resistors.
- If using a client network then UDP will only be available via the client network.

LED	Colour	Normal State	Description	User action (during abnormal state)
PWR	Blue	Pulsing	Indicates presence of power	Check power on NMEA2000 Bus / Check Fuses / Battery Voltage
		Flashing Fast	Indicates Firmware Update (Approx 4 times per second)	Do not remove power while the Firmware update is in progress
Status	Yellow	Pulsing	Indicates Wi-Fi access point is active	Confirm SSID on connecting device is correct / Confirm Client network is active / Check password is correct
		Flashing	Indicates active Wi-Fi connection in either Access Point mode or Client Mode (approx once per second)	
RX	Green	Flashing	Indicates data is being received on the NMEA2000 bus	Confirm there is another device transmitting on the NMEA2000 bus
TX	Amber	Flashing	Indicates data is being transmitted on the NMEA2000 bus	Confirm there are at least two NMEA2000 devices present on the bus

Note : Pulsing refers to the continuous "fading" mode of the LED

Note: If the W2K-1 does not re-direct to the home page and an error message is displayed, the likely cause is that the connection to the access point has been dropped during a re-start. This is dependant on the device connecting to the W2K-1's connection settings and also dependant on the operating system. The device should be set to **automatically connect** to prevent this situation, thus avoiding having to manually re-connect.

Technical Support and the Returns Procedure

The first point of contact for all technical enquiries should be the vendor / supplier where the device was originally purchased. All warnings in the manual must be adhered to and installation instructions followed prior to any support requests. If the troubleshooting guide, manual or the supplier are not able to help resolve the problem and an error persists, please visit the Actisense help centre; here you will find useful articles to aid further troubleshooting and a contact form for raising a support ticket.

If the Actisense support engineer concludes that the W2K-1 unit should be returned to Actisense, a 'Return Merchandise Authorisation' (RMA) number will be issued.

The RMA number must be clearly visible on both the external packaging and any documentation returned with the product. Any returns sent without an RMA Number will incur a delay in being processed and a possible charge. Any cables originally supplied with the product are to be included in the returned box.