



SEE, BE SEEN
BE SAFE AT SEA



USER MANUAL i320W

BIDIRECTIONAL NMEA WIFI INTERFACE

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ENGLISH

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1 i320W BIDIRECTIONAL NMEA WIFI INTERFACE



2 DOCUMENT

2.1 About This Manual

This Manual provides installation, operating Instructions and fault-finding procedures for the equipment to which it relates.

After installation, this manual should remain with the vessel to which it relates.

This manual may also be made available in electronic Portable Document Format (PDF). In PDF format, the following categories are all enabled as active hyperlink references: (1) The titles of each section; (2) document cross-references; (3) the table of contents.

This document may therefore be navigated quickly and effectively by using a mouse or other pointing device to activate each of these hyperlinks. This is a printer friendly document, designed to be printed 2-sided as a booklet with A5 pages on A4 stock paper.

Document name:	Date:	Details:	Author:
i320W-MA-v06r01	2019-11-17	First issue	JV / TSI

3 NOTICE

3.1 Copyright

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4 GENERAL NOTICES



SAFETY: Make sure the power supply is switched off before you make any electrical connections to the unit.



INSTALLATION: This equipment must be installed in accordance with the instructions provided in this manual. Failure to do so could result in poor performance, personal injury and/or damage to your vessel and/or connected equipment.



CABLES: The supplied cables should only be cut, shortened or lengthened by an appropriate supplier.



COMPASS: The compass safe distance of this unit is 0.5 m or greater for 0.3° deviation.

In accordance with a policy of continual development and product improvement, hardware and software may be upgraded from time to time, and future versions of equipment may therefore not correspond exactly with this manual.

When necessary, upgrades to the product will be accompanied by updates or addenda to this manual. Information contained in this manual is liable to change without notice.

Comar Systems Ltd. disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

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.

5 INTRODUCTION

Congratulations on the purchase of your Comar i320W Bidirectional NMEA WiFi Interface.

The i320W Bidirectional NMEA WiFi Interface provides a low cost method of setting up a wireless network on-board. This will enable you to use marine navigation programs or apps on your smartphone, tablet or PC to display all your electronic data including position, AIS data, depth, wind, compass heading and more.

This manual describes the installation and operation of the i320W.

Before operating the unit you should familiarise yourself with this user manual.

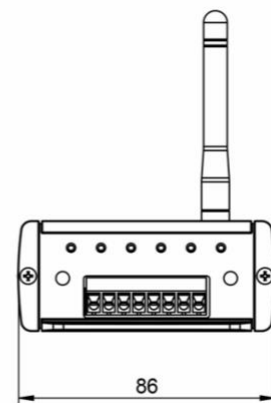
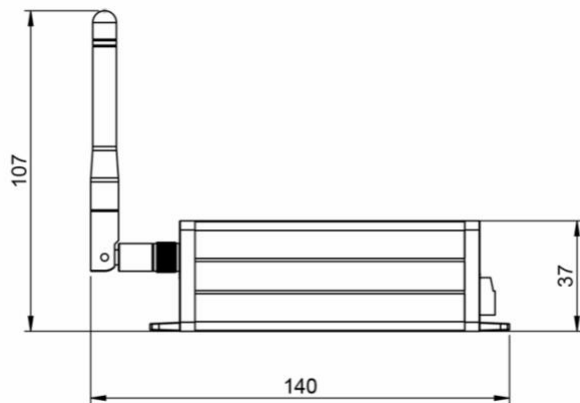
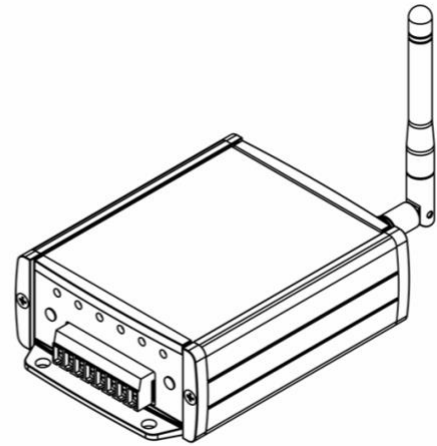
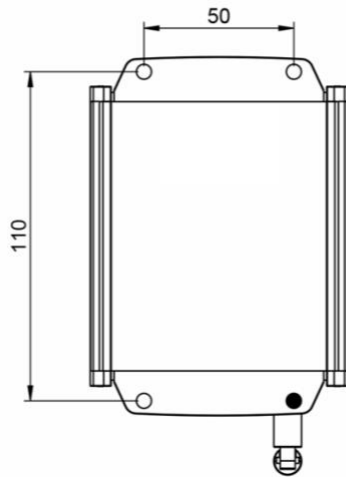
5.1 Parts List

On delivery, carefully inspect the contents of the packing case. Note any damage or any missing items. Ensure that the correct parts are included for your application:

Item:	Description:	No. included:	COMAR SKU Number:
1	i320W Bidirectional NMEA WIFI Interface	1	001-1061
2	WIFI Antenna	1	004-7116
3	i320W Manual	1	004-7667
4	USB Cable	1	002-1006

6 MAJOR DIMENSIONS

All dimensions in mm:



7 INSTALLATION

7.1 Before you Start

You will need the following items and tools to complete the installation:

i320W Bidirectional NMEA WiFi Interface

Access to 12 V dc or 24 V dc power supply where the unit is to be installed, via a 1 A rated fuse or circuit breaker / or alternatively a USB cable connected to a USB power source.

Four screws or other fixings appropriate to the mounting location

7.2 Installing the Unit

The i320W unit is not waterproof and should be installed in a dry location. The unit can be secured by the 4 mounting holes in the end flanges. It should ideally be installed in a location suitable for connection to power and NMEA cables. When installing the unit you should consider:

- The best location for WiFi transmission, ideally within sight of the device you wish to connect to (Mount the device away from obstructions, that can have a negative impact on wireless performance. Also avoid mounting the unit behind any metal structures.)
- Nearby interference that can impact your i320W Interface installation
- Routing of the power cables to the unit
- Provision of sufficient space behind the unit for cable connections
- Maintaining the compass safe distance of 0.5m
- Visibility of the front panel indicators

7.3 Installation Step 1

Secure the i320W to a flat surface in the selected location. Use four 5mm wood screws, or other fixings suited to the material the unit is being fixed to

The unit may be installed in any orientation

7.4 Installation Step 2

Refer to section 7.5.1 Connection Diagram. Make the electrical connections to the i320W:

Connect 12 V dc or 24 V dc power supply cables to the power terminals. The positive power supply wire should be connected to the positive terminal via a 1A rated fuse or circuit breaker. The negative power supply connection should be connected to the negative terminal. / Alternatively you can power the device through the USB socket connected to a USB power source.

The i320W Bidirectional NMEA WiFi has two NMEA 0183 Inputs, NMEA IN 1 and NMEA IN 2. Per default, the NMEA IN 1 port is set up to a baud rate of 38400 and the NMEA IN 2 port to 4800 baud. Both ports can be configured to different baud rates via the i320W Configuration Tool.

AIS Receivers and Transponders normally use a baud rate of 38400. Most other NMEA 0183 devices usually use 4800 baud (such as a GPS, Chart Plotter or Instruments).

If the equipment that you are connecting to has a pair of NMEA cables, normally marked NMEA Output Positive (A) and Negative (B) these should go to the respective NMEA input on the WiFi unit.

If the equipment has only one Positive NMEA output wire this should go to the A NMEA Input and a wire from the B NMEA Input should then be taken to the common ground/negative of the other equipment.

Connect an AIS source to the "NMEA IN 1" port, observing the correct polarity.

7.5 Installation Step 3

Apply power and verify that the unit is operating:

Apply power to the i320W and all connected devices.

Verify that the green power LED on the i320W is illuminated

Use a WiFi enabled device like a smartphone, tablet or PC and search for WiFi networks. Your device should find the i320W network and you should be able to connect without a password.

Wait for the connected AIS receiver to receive the first AIS messages (usually indicated by flashing LEDs). Once the AIS receiver is sending NMEA 0183 AIS data to the i320W you should see the NMEA IN indicator LED flashing yellow.

Now, open a marine navigation program / app that is able to process AIS messages on your WiFi enabled device that you have connected to the i320W WiFi network. In the settings page of the program / app set the AIS settings as follows:

Protocol: TCP

IP Address: 10.10.100.110

Port: 10110

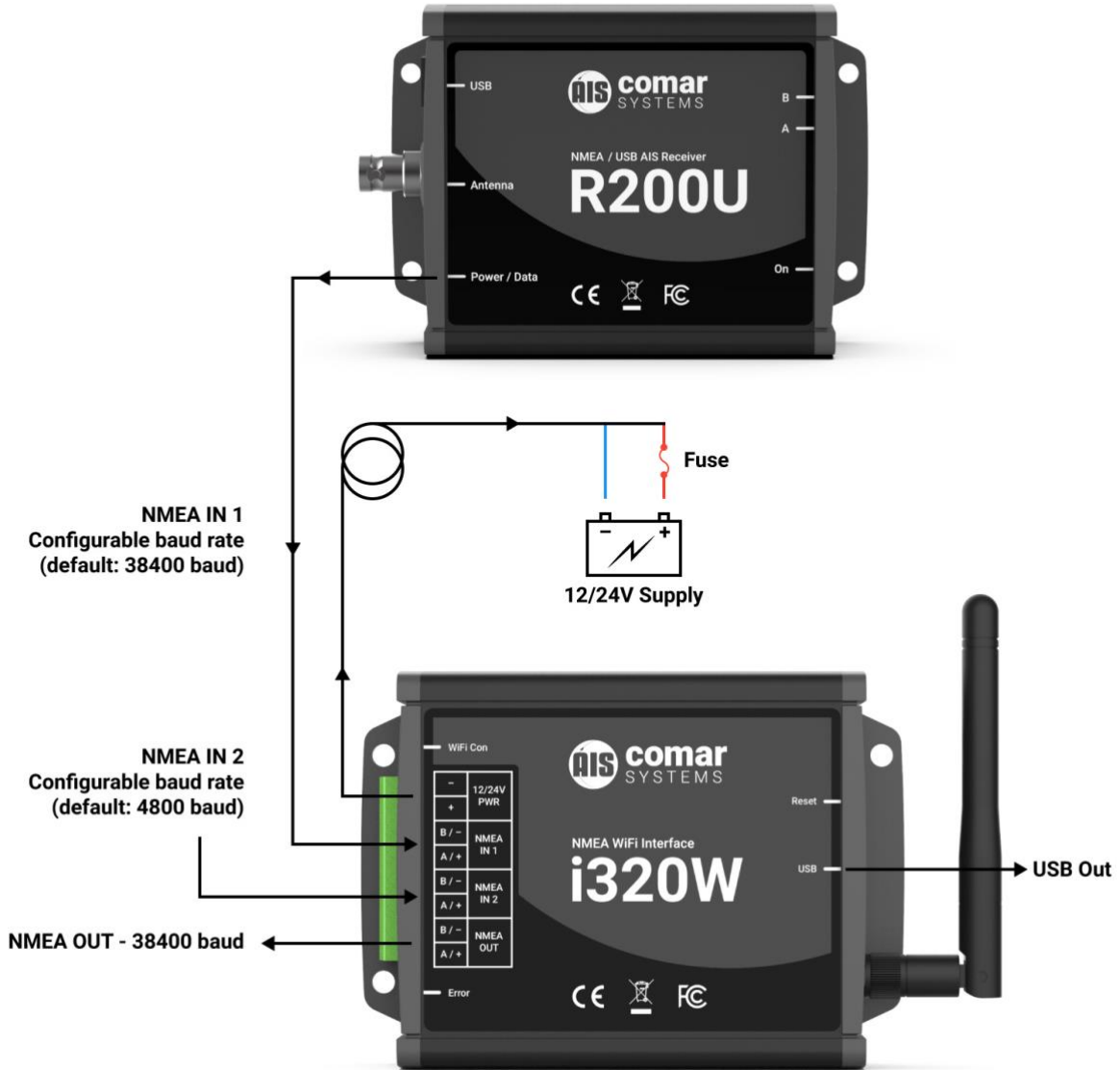
Once successfully connected you should see the AIS data displayed on your screen.

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7.5.1 Connection Diagram

Example with R200U Receiver

Any Comar receivers or transponders can be used



Note: Input can be from any receiver or transponder with a serial NMEA output. The R200U shown above is used as an example.

8 OPERATION

Operation of the i320W is automatic and requires no user intervention.

8.1 LED Indicator description

LED Indicator Description

LED:	Description:
WIFI CON	Indicates if a device is connected to the i320W through WiFi
PWR	On when powered
NMEA IN 1	Flashing once with every NMEA message received at NMEA input 1
NMEA IN 2	Flashing once with every NMEA message received at NMEA input 2
NMEA OUT	Flashing once with every NMEA message sent through NMEA output
ERROR	Indicates that an Error occurred

8.2 Default settings

The i320W Bidirectional NMEA WiFi Interface comes preset with the following settings:

Setting:	Default Value:
WiFi Mode	Access Point
SSID	i320W
WIFI Key	None (open)
IP Address	10.10.100.110
Net Mask	255.255.255.0
Protocol	TCP
Mode	Server
Port	10110
USB Data enable	On
Bidirectional Mode enable	Off
NMEA IN 1	38400
NMEA OUT	38400 (Always same as IN 1)
NMEA IN 2	4800

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8.3 Setup Tool

The i320W Setup Tool allows you to configure your i320W. The Tool is compatible with Microsoft® Windows®.

The system requirements are as follows:

- Microsoft® Windows® XP, Windows Vista, Windows 7 or Windows 10 (32 and 64 bit)

8.3.1 Installing the i320W Setup Tool

The application is installed from our website in the software downloads section: <https://comarsystems.com/download/i320w-software/>. Download and unpack the file, navigate to the i320W Setup Tool folder. Double click the setup.exe item to start the installation and follow the on-screen instructions.

8.3.2 Connecting to your i320W / Read Data

Before launching the i320W Setup Tool, first connect your i320W to your computer using the USB cable. Allow some time for the drivers to be automatically installed in the background. This can take a few minutes. After the device drivers have been successfully installed, you can launch the i320W Setup Tool.

Select the serial port corresponding to your i320W from the drop down menu at the bottom right of the i320W Setup Tool window, and click the "Read Data" button.

The i320W Setup Tool is now communicating with your i320W and will display the current setup of your device.

8.3.3 Changing the configuration / Write Data

Make changes to the configuration data as desired.

Click the "Write Data" button to set up your device with the new configuration.

A message box confirms the successful configuration of your device. Press "Exit" and disconnect your device. The new configuration becomes active after power cycling the unit.



8.4 Factory Reset

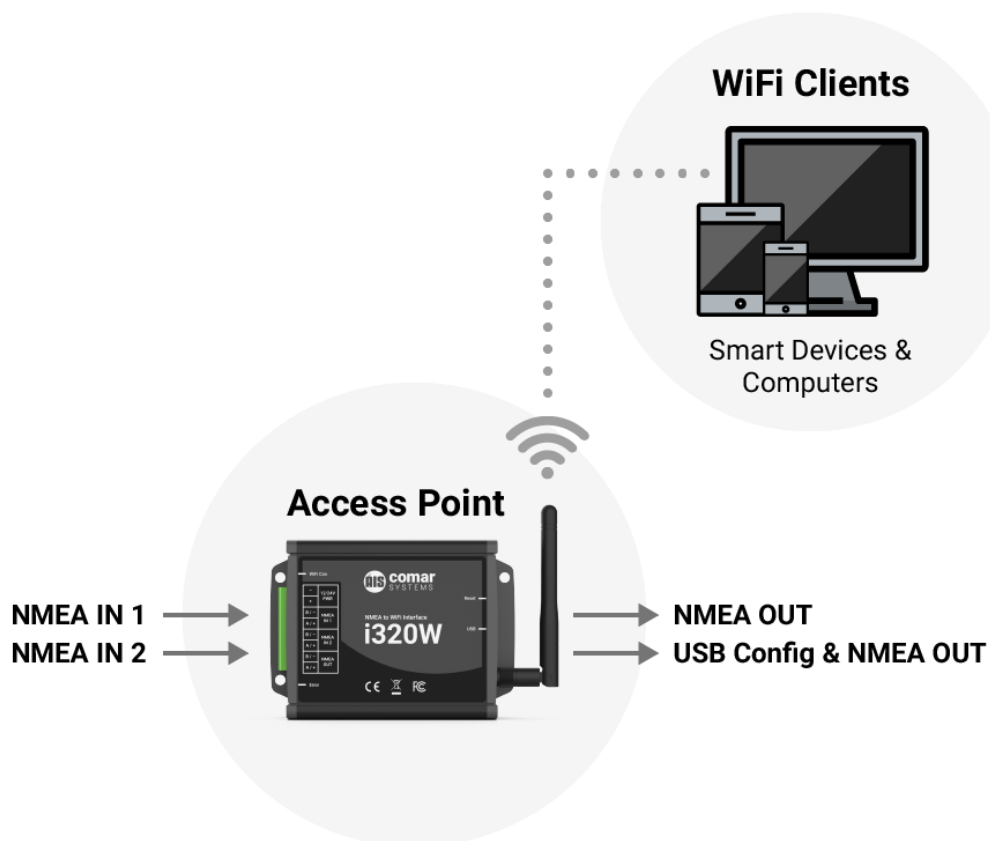
To reset the i320W to default factory settings, disconnect all power sources from the unit (power cables as well as USB cable). Using a paper clip, push the reset button (a click will be felt), power on the device either through the power connection or the USB cable and hold down the reset button for at least 5 seconds, after which the factory defaults will be restored.

i320W

8.5 WiFi Modes

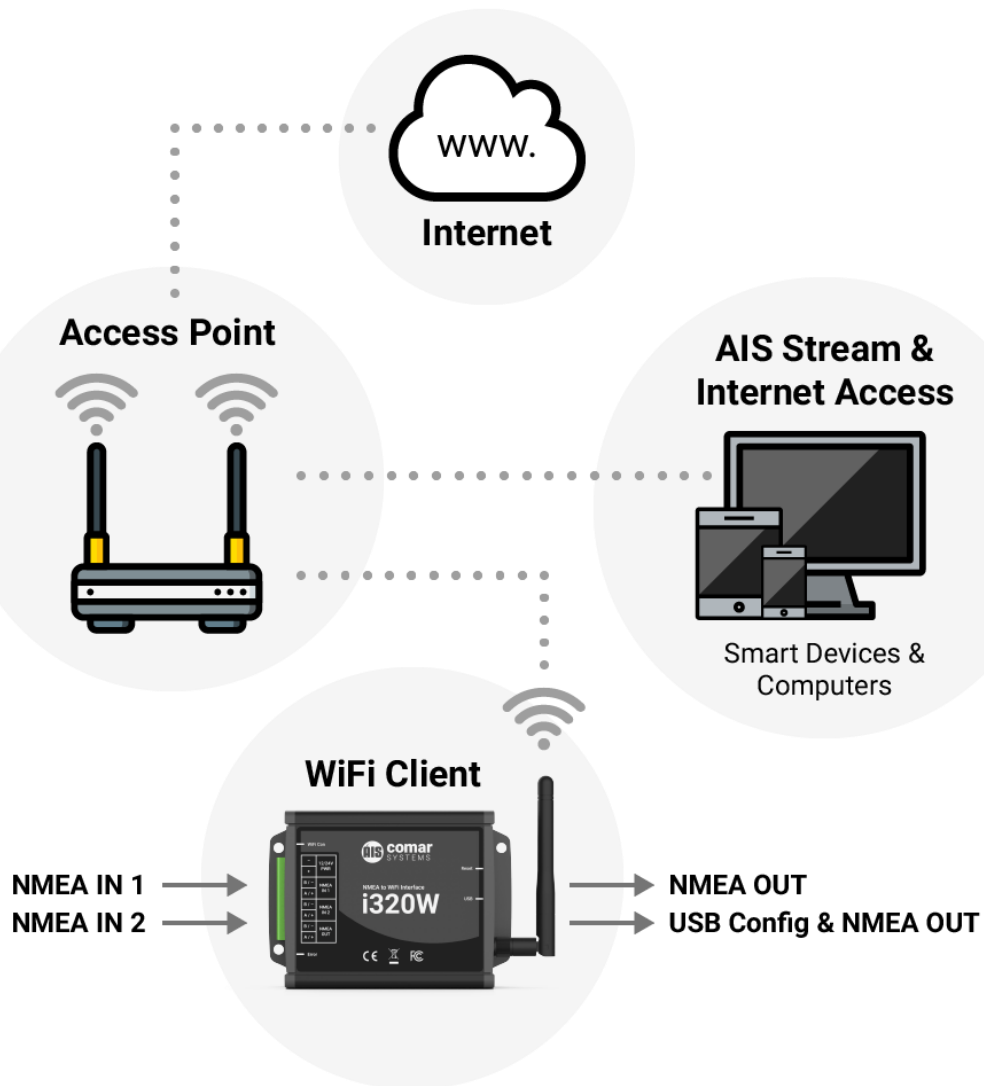
The i320W can be set up to multiple modes. This section should give an overview how to set your device to one of the main modes.

8.5.1 Access Point Mode



Access Point Mode is set up as default. Use this mode if the i320W is the only WiFi Access Point on your vessel. Mobile devices can connect directly to the interface and stream NMEA data over IP. In this mode the i320W can be set up as a TCP server, TCP client, UDP server or UDP client.

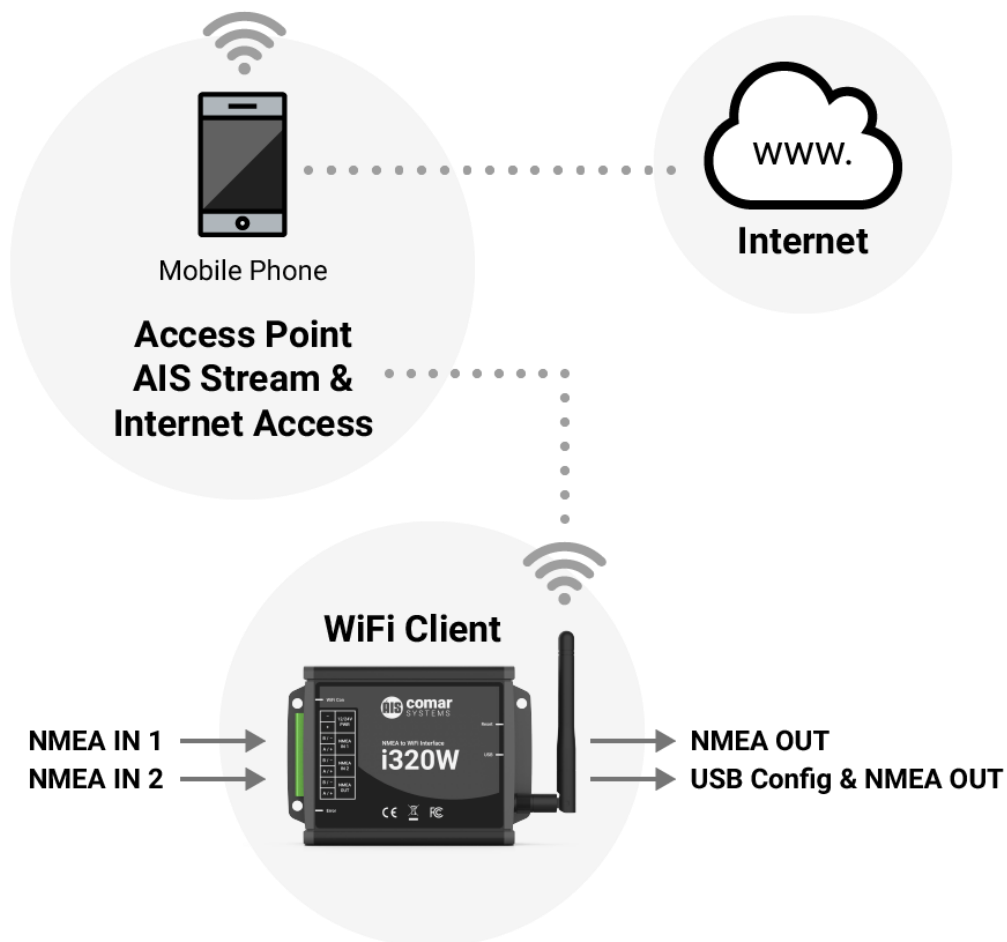
8.5.2 WiFi Client Mode



If you want to install your i320W alongside an existing WiFi Access Point, use the “Client Mode”. To set the device into “Client Mode”, select “WiFi Mode” > “Client” in the i320W Configuration Tool. In the SSID and WiFi Key fields, fill in the settings of the Access Point you want to connect your i320W to.

In this mode the i320W can be set up as a TCP server, TCP client, UDP server or UDP client.

8.5.3 WiFi Client Mode – Mobile phone as access point



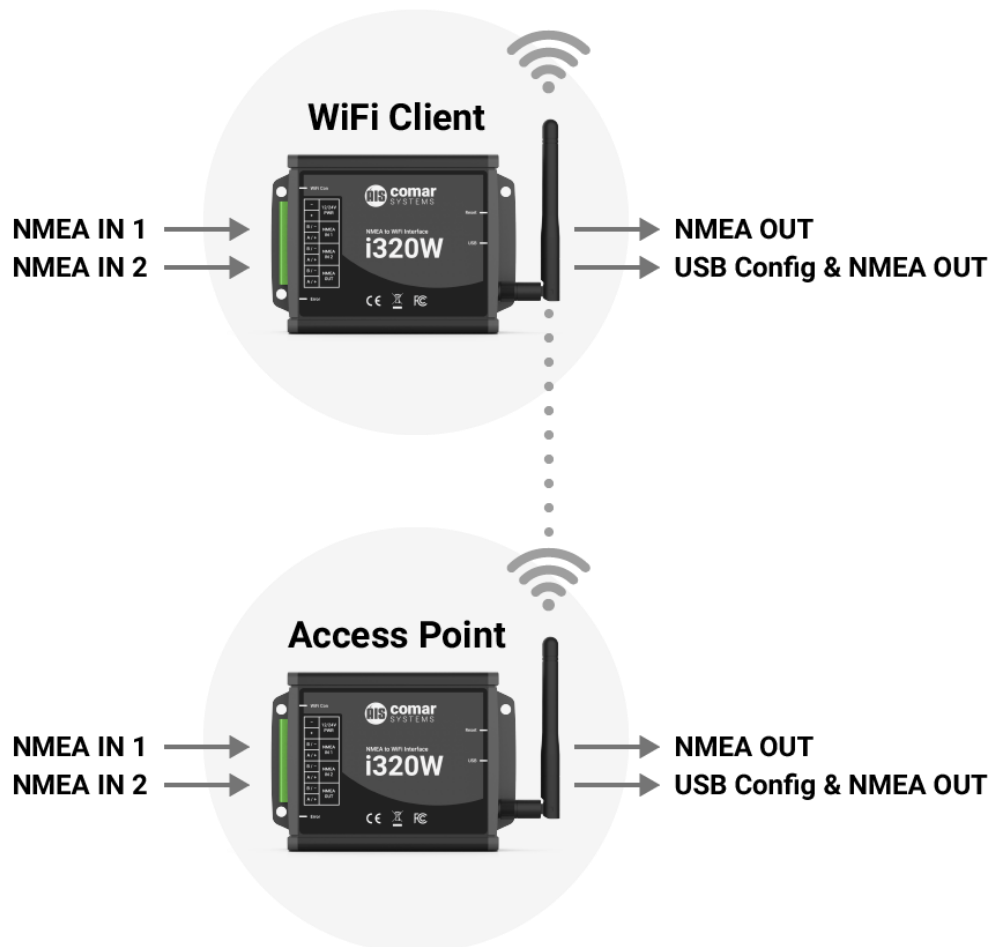
If you have no existing WiFi Access Point on your vessel but want to use the existing data option on your mobile phone, use this mode.

Similar to 8.5.2, set the device into Client Mode by selecting “WiFi Mode” > “Client” in the i320W Configuration Tool. In the SSID and WiFi Key fields, fill in the settings of the Access Point you want to connect your i320W to.

Set up your phone as a WiFi Access Point (also known as tethering). Your mobile phone will now have access to the internet and the AIS data at the same time, providing your mobile device is connected to the internet.

In this mode the i320W can be set up as a TCP server, TCP client, UDP server or UDP client.

8.5.4 Bridge Mode



If you have a situation where you cannot run a cable for a NMEA 0183 connection you can forward a NMEA 0183 connection through WiFi and then back to NMEA 0183 with this mode.

For Bridge Mode you need two i320W units. Set up one i320W to "WiFi Mode" > "Access Point" and the other i320W to "WiFi Mode" > "Client". The SSID and WiFi Key fields have to be the same info for both units.

Set one unit up as a TCP client, and the other unit as a TCP Server. In the "Server IP" field of the i320W that is configured as TCP client, enter the IP address of the TCP server (the other i320W). The port has to be identical for both units.

Enable "Bidirectional Mode".

Once the devices have successfully established a connection, you should be able to forward NMEA 0183 data through WiFi.

9 FAULT FINDING

9.1 No green ON LED is displayed

Check power supply connections and fuse or circuit breaker

Check polarity of power supply connections

Check power supply voltage

9.2 No DATA LED flashing

Check that the NMEA equipment is switched on

Check polarity of the NMEA cables: A – A (or +), B – B (or -)

9.3 Unable to see the i320W Network

Move closer to the unit to improve radio reception

9.4 Unable to connect to the unit

Retry connecting, initially the device may take a while to negotiate with the network, as a radio device, it is possible to suffer from interference in a busy marina, moving closer to the device will improve the signal and give a more reliable connection.

10 SPECIFICATION

10.1 Physical	
Weight:	200 g
Dimensions:	L 120 x W 86 x D 37 mm
Mounting:	To flat surface
Connections:	8-way Screw Terminals USB 2.0 Port: Type B (Cable Supplied)
Construction:	Aluminium, ABS End Caps
Finish:	Black Fine Texture Paint, Grey ABS

10.2 Electrical	
Input Voltage:	9-30 V DC
Current:	100mA @ 12V DC

10.3 Operational	
Input:	NMEA 0183 (default: 4800 Baud and 38,400 Baud)
Output:	NMEA 0183 (default: 38,400 Baud)
WIFI:	2.4GHz 802.11b/g/n

10.4 Environmental	
IP rating:	IP40
Operating Temperature:	-15°C to +55°C
Compass:	Safe distance 50 cm

10.5 Additional Information	
A suitable App or Program is required to display the data	

11 SAFETY AND SECURITY

Please observe the following procedures to ensure safety of personnel installing and operating the equipment:

1. Ensure all power to the unit is disconnected and locked-out during installation, maintenance and removal procedures
2. Ensure power is disconnected and locked-out in the event of mechanical damage to the unit, rendering internal parts accessible to personnel
3. Only the electrical power of the specified voltage should be connected to the unit
4. The panel to which the unit is mounted should be designed to provide adequate mechanical support. This minimises the possibility of damage or injury caused under mechanical shock conditions
5. Care should be taken to ensure the fixings used to mount the unit to the panel are correctly fitted and retain their mechanical integrity over time

12 LIMITED WARRANTY

COMAR SYSTEMS LTD. warrants this product to be free from defects in materials and manufacture for one year from the date of purchase. Comar Systems Ltd will, at its sole option, 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 Comar Systems Ltd.

This warranty does not cover failures due to abuse, misuse, accident or unauthorised alteration or repairs.

The above does not effect the statutory rights of the consumer.

Changes or modifications not made by Comar Systems or an authorised repairer will: (1) Void the warranty issued by Comar Systems (2) Void the user's authority to operate the equipment.

Note: Every effort has been made to ensure that all information contained in this manual is accurate at the time of going to press. We therefore cannot take any responsibility for the content of this manual and advise that you take normal steps to ensure that the information is at its most current when you are reading this manual.

NOTES



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