MANUAL

Simrad WR20

RemoteCommander

Jun06 E04921 Rev.C English

COMMUNICATION NAVIGATION INSTRUMENTS AUTO STEERING FISH FINDING

SIMRAD

THE FULL PICTURE

MANUAL

Simrad WR20

RemoteCommander

Jun06 E04921 Rev.C English

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WR20 RemoteCommander
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1. INTRODUCTION

1.1 General

The WR20 Remote Commander is a sophisticated wireless command centre comprising a rugged, compact, Handset and SimNet Base Station. It enables you to remotely control all of your SimNet electronics such as Plotter/Radar, Autopilots and Instruments. It also controls the VHF with the advanced features of voice calls.

Fig 1.1 - Remote Commander

When paired to a mobile phone it offers the same operating features as a Bluetooth Handset.

Using the latest Bluetooth technology means that you are always in control when you want to be.

The WR20 has safety in mind, so it's very simple to trigger MOB alerts, make VHF calls on Channel 16 and switch the Autopilot between Standby and Auto.

To prevent accidental use, the keypad can be locked and unlocked as required.

The WR20 Handset has been designed to survive the rigours of the marine environment. It has a tough, sealed body that is fully waterproof and houses an integral Li-Ion rechargeable battery that is automatically charged whenever it is placed in its cradle.

Note *A product that is under command from the WR20 can be operated locally by direct operation at the units own keypad in the normal way.*

Warning

As with all electronic navigational equipment, it is only an aid to navigation and should not be used as a substitute for good seamanship. Remember - Maritime law requires that you keep a good lookout at all times.

Note *The way that Bluetooth operates means that the maximum distance between the WR20 handset and its base station is less when using the handset in audio mode (VHF, intercom or mobile phone modes) than for data communication. In addition the Bluetooth signal strength is heavily attenuated by the human head and is optimized when the handset is in line of sight of the base station*

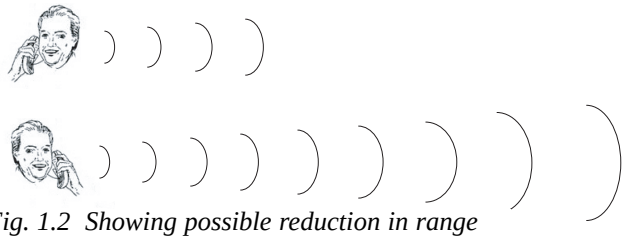


Fig. 1.2 Showing possible reduction in range depending on how the handset is held

1.2 About this manual

The manual combines operating and installation information for the WR20. Operation is sub-divided into main product categories for easy reference. For full operating details of the products under WR20 control, please refer to their supplied user manual.

1.3 SimNet network system

SimNet is Simrad's proprietary high speed data bus network. It provides intelligent sharing of data and control information between a wide range of marine electronics and instruments.

1.4 Bluetooth

Bluetooth is the name of a wireless technology standard for connecting devices without the need for cables. It provides a reliable means of data and audio communication between the remote Handset and a fixed Basestation.

Note *The separation distance between the Handset and Basestation can generally be greater for data communication compared with that of audio communication.*

Note *Bluetooth and WiFi technologies operate in the same part of the radio spectrum. As with any Bluetooth enabled devices working in a WiFi environment interference can occur. Caution is therefore*

advised when using the WR20 under these conditions as operation may be impaired and interference may be heard on the VHF audio channel.

Warning

This equipment communicates wirelessly with the installed instrument system. It is possible that the wireless link will fail due to a variety of reasons including, but not limited to, low battery power, travelling out of communication range and high levels of RF interference.

Users should be aware that failure of the wireless link would lead to the inability to control the vessels systems from the WR20 including an inability to alter pilot course or make VHF calls. In such circumstances a product can be operated locally by direct control at the units own keypad.

2 INSTALLATION

2.1 General

There is no installation required for the Handset which is already "paired" to the Basestation and ready to use. Installation of the Basestation and recharge cradle is very simple.

2.2 Installing the recharge cradle

Choose a convenient, dry location to mount the Handset cradle using the two screws provided. A 12V power cable is supplied and this should be connected to a suitable supply fused at 2A. Connect the Red wire to +12V and the Black wire to 0V (Ground).

2.3 Charging the WR20 Handset battery

Push the Handset firmly into the cradle, (Fig. 2.1) and the Handset battery will charge. If the Handset is switched off the charge status will be indicated in the display. The unit may be switched on and will function normally while charging.

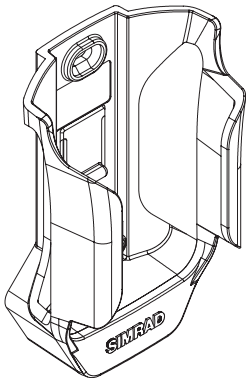


Fig. 2.1 - WR20 Charging Cradle

2.4 Installing the Basestation

Careful consideration must be given to the location of the Basestation to ensure optimum performance.

- Avoid installing behind other electrical and electronic devices as they may reduce the signal strength and consistency of wireless communications

- The Basestation should be at least 2m away from any other Bluetooth or Wireless LAN (WiFi) transceiver

- Carbon fibre and steel are strong reflectors of RF signals; they can severely limit the Bluetooth range depending on the relative position of the Handset and Basestation

- Mount in an accessible location for access to pairing functions.

Due to the characteristics of wireless communications a small alteration in mounting location can make a large difference in signal strength. A location that is reasonably central in the boat and reasonably high is favoured.

It is also recommended that the wireless performance is checked prior to final installation to help decide the optimum location. If the Handset is to be used as a VHF station the check should also include audio performance as the range is more limited than the transfer of data.

The Basestation is connected to the SimNet databus using the cable supplied. This also supplies power to the Basestation and separate power is not required. Ensure that the connector on the end of the cable is in the correct orientation and press firmly into either of the two Basestation sockets. The spare socket can be used to daisy chain SimNet to another item of equipment. If the spare socket is not used insert the supplied blanking plug.

2.5 Connecting to a VHF radio

If the WR20 is to be used as a VHF Handset the Basestation must be connected to the VHF black box using an accessory cable. There are two accessory options, the EXPC05 is a 5 meter cable and the EXPC20 is a 20 meter cable. The end of the cable with the round connector attaches to the corresponding connector on the Basestation.

The other end of the cable has a prewired connector block that locates in the next available free station in the VHF black box. Please refer to your VHF user manual for further instructions (Fig. 2.2).

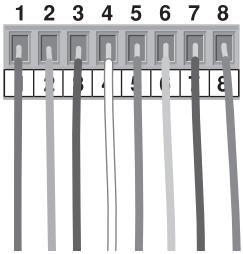


Fig. 2.2 - Terminal wiring

Terminal Number	Wire Colour(s)
1	Brown
2	Green
3	Red
4	White
5	Blue
6	Yellow
7	Orange
8	Black

The radio can also be fitted with a Simrad LS80 external speaker or third party speakers with an impedance of 4 Ohms. If an external speaker is to be fitted this must be wired directly into the connector block. Remove the wires from the connector block terminals 7 and 8 and insulate the bare ends. These wires are are redundant and not used. Wire the external speaker into the two free terminals.

Note *The Basestations VHF cable must not occupy the connector in the VHF black box that is designated Station 1. Station 1 must be connected to a hardwired VHF Handset or Control Panel.*

3 HANDSET AND KEYPAD OVERVIEW

3.1 Layout

Functions:

1 Speaker/Earpiece
2 PTT (Push-To-Talk)
3 MOB & Soft key 1
4 MOB & Soft key 2
5 4-way NavPad (Up/Down/Left/Right)
6 Product Selection
7 Menu/Enter
8 POWER & LIGHTS
9 STANDBY/AUTO
10 Microphone

Fig 3.1 - Wireless Remote Commander

Note *When using your WR20 Handset for voice communication, hold the Handset speaker close to your ear as you would a mobile phone.*

3.2 PWR/LIGHTS key (Powering on and off)

Press the **PWR/LIGHTS** key to turn on the WR20 Handset. The display will show "SIMRAD WR20" and the current software version number. After approximately 2 seconds the display will revert to the Product List (see section 5.3)

To turn the Handset off, hold the **PWR/LIGHTS** key for 3 seconds. The display will show

"Power Down
Hold PWR Key
for 3 Secs"

If the **PWR/LIGHTS** key is released at any time during the power down sequence, the Handset will revert to whatever it was displaying prior to pressing the **PWR/LIGHTS** key.

3.3 PTT key

The PTT key (Fig. 3.1 Item 2) is reserved for the operation of the VHF Radio/Intercom (if connected). When pressed the user is able to Transmit audio from the Handset. When released the user is able to hear any audio received by the VHF Radio, (as long as the squelch is open). The user cannot Transmit from the WR20 Handset if the radio is already in the transmit mode from the main unit.

Note *If the Handset is set to any product page other than the VHF Radio/Intercom mode, pressing the **PTT** key for 2 seconds will change the WR20 to show the VHF Radio/Intercom Product.*

3.4 SoftKeys

There are two SoftKeys located directly below the LCD, (Fig 3.1 Items 3 & 4). The function of each SoftKey is shown in the bottom line of text directly above it.

When the two SoftKeys are pressed simultaneously for over 3 seconds, the **MOB** (Man Over Board) function is activated, if an active Simrad navigation product is connected.

3.5 Navigation keys

The circular NavPad, (Fig. 3.1 Item 5) can operate in a variety of modes depending on product being operated.

3.5.1 4-Way menu navigation

The ▲▼ keys are used for picking or highlighting an item in a list.

The ◀ key is used to return to the previous menu (unless it has a predefined function). Pressing and holding the ◀ key will exit all menus and return you to the top level menu.

Pressing the ▶ key, (once an item is highlighted), will select it, or go further into that items sub menus, (unless it already has a predefined function).

3.5.2 4-Way remote key control

Pressing a key on the NavPad has the same effect as pressing a specified key on the device being controlled and may be considered a Remote Key Press.

3.5.3 8-Way Remote Control Mode

In this mode, combination keys are allowed. For example, pressing ▲ and ◀ together will be interpreted as diagonally up and to the left. This can be useful for positioning the cursor on a Chartplotter or Radar if connected into the SimNet Network.

3.6 ↵ MENU key (Enter / menu key)

The ↵**MENU** key (Fig. 3.1 Item 7), has two functions :

3.6.1 Menu function

Pressing the ↵**MENU** key will bring up the menu associated with the product that is currently selected on the WR20.

3.6.2 Enter function

When navigating within a menu, once an item has been highlighted, pressing the ↵**MENU** key will select that item; this could be another menu, data item to adjust, or a new product to control.

3.7 Product key

Pressing the **PRODUCT** key (Fig. 4.1 Item 6), brings up the top level display showing all products that are available for control by the WR20.

3.8 STBY / Auto key

The **STBY/AUTO** key (Fig. 4.1 Item 9), is exclusively reserved for the Autopilot and will only be usable if there is a WR20 compatible Autopilot connected to the Network.

If the WR20 is controlling any other product, a single press of the **STBY/AUTO** key will put the Autopilot into standby mode and give the WR20 Handset the active control (See section 6.3)

Press and holding the **STBY/AUTO** key for 2 seconds will put the Autopilot into Auto Compass mode and give the WR20 Handset the active control (See section 6.5).

3.9 PWR/LIGHTS key (Backlight adjustment)

The backlighting will come on whenever a key is pressed, and will stay on for 10 seconds. There are two methods for changing the level of the backlight:

3.9.1 Method one

Press the **PWR/LIGHTS** key (Fig. 3.1 Item 8) and by using the ▲▼ keys, adjust the light to the required level. The current value will be shown in the display, (between Off - 9).

Note *If a key has not been pressed for 2 seconds, the display will return to its previous state.*

3.9.2 Method two

Via the "WR20 Setup" menu, see section 4.2.1.1

3.10 Auto KeyLock

If the WR20 has not been used for a predetermined time, the keypad will lock, a short beep will be heard, and the **UNLOCK** SoftKey function will appear.

Note *The display may automatically revert to the Main Menu display at the same time as the Auto KeyLock starts (depending on the mode of operation or menu currently activated).*

Note *The Auto KeyLock option can be turned on/off and a delay time entered in the initial WR20 Setup. (See section 4.2.1.5)*

Pressing the **UNLOCK** SoftKey will activate a pop-up box displaying the text;

"Press ↵**Menu** To Unlock"

If the ↵**MENU** key is not pressed within 2 seconds, the display reverts back to the KeyLocked display.

Pressing ↵**MENU** will unlock the keypad and return the display to its unlocked state. The Auto KeyLock timer is reset and starts to countdown again, (from delay time defined in setup).

Note *While unlocked, every key press will reset the countdown timer to the delay value as defined in "WR20 setup".*

3.11 Battery level indicator

The battery charge status is indicated by the "" symbol in the centre lower part of the display. When fully charged the bargraph contains the letter "**F**". When the battery is depleted and requires recharging the following message (Fig. 3.2) is displayed.

Fig. 3.2 - Battery Low Warning

If the unit continues to be used without being charged the following message appears when the battery level falls critically low (Fig. 3.3).

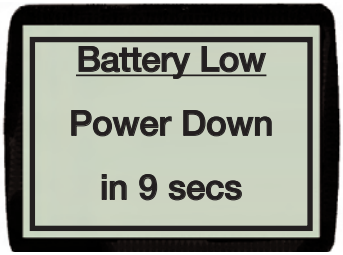


Fig. 3.3 - Powering Down

3.12 Signal indicator

All the time the Handset is in communication with the Basestation the "" symbol is shown in the lower right hand side of the display. If the signal is lost for any reason, this will disappear.

4 HANDSET CONFIGURATION

4.1 General

The WR20 has many advanced features that are user configurable as described below.

4.2 Setup options

To access the setup options first press the **PRODUCT** key and the product list will be displayed (Fig. 4.1).

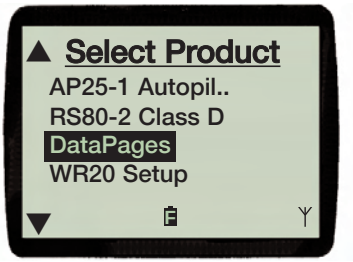


Fig. 4.1 - Instrument menu

Using the ▲ or ▼ keys, highlight "WR20 Setup" and press ↵**MENU** key to select it (Fig. 4.2).

Fig. 4.2 - Setup menu

If there are more items above those being displayed, then ▲ will be shown in the top left corner of the LCD. If there are more items below those being displayed, then ▼ will be shown in the bottom left corner of the LCD.

Once selected the full list includes:

- User settings
- Unit Selection
- Installation
- Phone Setup
- Radio Setup
- Select Radio

Note "*Select Radio" will only appear if more than one VHF radio is present on the SimNet network.*

4.2.1 User settings

Selecting the "User Settings" option from the Setup list opens the following menu (Fig.4.3).

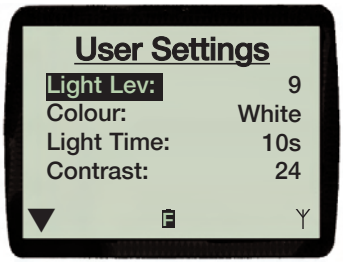


Fig. 4.3 - User Settings

Note *The same menu will appear when the **PWR/LIGHTS** key is pressed.*

The full list includes:

- Light Lev
- Colour
- Light Time
- Contrast
- Auto KeyLock
- KeyBeep

4.2.1.1 Light level

Highlight "Light Lev" and then use the ▶ key to highlight the light level value. Use the ▲ or ▼ keys to adjust to the desired level between Off - 9.

To return to the user settings list press ◀.

4.2.1.2 Colour

Highlight “Colour” and then use the ▶ key to highlight the colour value. Press the ▲ or ▼ key to toggle the colour between “Red” and “White”.

To return to the user settings list press ◀.

4.2.1.3 Light Time

Following a key press the backlights come on for a predefined period. This period can be adjusted by highlighting “Light Time” and then using the ▶ key to highlight the timeout value. Press the ▲ or ▼ key to select a time delay of 10s, 20s or 30s for the lights to remain on after a key press.

To return to the user settings list press ◀.

4.2.1.4 LCD contrast

Highlight “Contrast” and then use the ▶ key to highlight the contrast value. Use the ▲ or ▼ keys to adjust the Display Contrast to a suitable level between 0 - 40.

To return to the setup list press ◀.

4.2.1.5 Auto KeyLock

Highlight “Auto KeyLock” and then use the ▶ key to highlight the time delay interval. Use the ▲ or ▼ keys to toggle the delay interval between Off, 30s or 60s.

To return to the setup list press ◀

4.2.1.6 KeyBeep

An audible KeyBeep can be switched on or off. Highlight “KeyBeep” and then use the ▶ key to highlight the current setting. Use the ▲ or ▼ keys to toggle the KeyBeep between On or Off.

To return to the setup list press ◀.

4.2.2 Unit selection

Selecting “Unit selection” from the “WR20 Setup” menu will display data in predefined units of measurement, however, these can be changed to meet individual needs (Fig. 4.4).

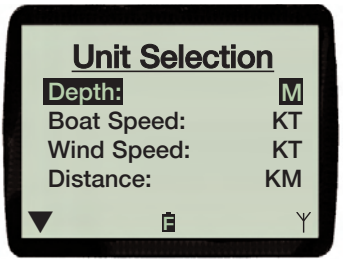


Fig. 4.4 - Unit selection options

The full list includes:

- Depth
- Boat Speed
- Wind Speed
- Distance
- Temperature

4.2.2.1 Depth units

Highlight “Depth” and then use the ▶ key to highlight the current depth unit. Use the ▲ or ▼ keys to toggle between feet and meters.

To return to the setup list press ◀.

4.2.2.2 Boat speed units

Highlight “Boat Speed” and then use the ▶ key to highlight the current units. Use the ▲ or ▼ keys to change between knots, miles per hour and kilometres per hour.

To return to the setup list press ◀.

4.2.2.3 Wind speed units

Highlight “Wind Speed” and then use the ▶ key to highlight the current units. Use the ▲ or ▼ keys to change between knots, kilometers per hour, miles per hour, meters/sec and Beaufort.

To return to the setup list press ◀.

4.2.2.4 Distance units

Highlight “Distance” and then use the ▶ key to highlight the current units. Use the ▲ or ▼ keys to change between nautical miles, statute miles and kilometres.

To return to the setup list press ◀.

4.2.2.5 Temperature units

Highlight “Temperature” and then use the ▶ key to highlight the current units. Use the ▲ or ▼ keys to toggle between °Fahrenheit and °Centigrade.

To return to the setup list press ◀.

4.2.3 Installation

Selecting “Installation” from the “WR20 Setup” menu provides the following options (Fig 4.5).

Fig. 4.5 - Installation options

The full list includes:

- Pair to WB20
- Product Info
- Reset B/Station
- Reset Defaults
- S/W Upgrade

4.2.3.1 Pair to WB20

When “Pair to WB20” is selected from the “Installation” menu the WR20 enters pairing mode. For more information on pairing, refer to section 12.2.

To return to the setup list press ◀.

4.2.3.2 Product info

When “Product Info” is selected from the “Installation” menu, the Software Version and Serial Number is displayed for both the Handset and Basestation (Fig. 4.6).

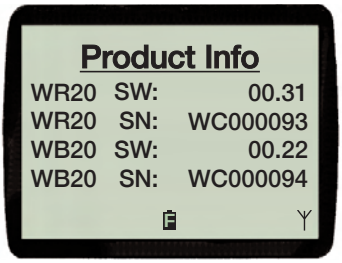


Fig. 4.6 - Product Info

To return to the setup list press ◀.

4.2.3.3 Reset B/station

The BaseStation is always powered on when it is connected to a live SimNet system. The “Reset B/Station” function essentially switches the BaseStation off and then on again. This has the advantage that it can be done remotely from the handset no matter where the BaseStation is mounted.

To switch the BaseStation off and then on again select "Reset B/Station" from the "Installation" menu and press ↵MENU. The reset is executed immediately. Press ◀ to return to the previous menu.

4.2.3.4 Reset defaults

This function will set user configurable variables back to the factory preset values.

4.2.3.5 S/W upgrade

In the event that software upgrades become available these can be downloaded to the WR20 over Bluetooth. Instructions for downloading will be supplied with the software upgrade.

4.2.4 Phone setup

From the “WR20 Setup” menu your WR20 can be paired with many makes of mobile phone that feature Bluetooth Headset support. The “Phone Setup” menu allows this feature to be enabled

– in which case “Mobile Phone” will appear as a selectable item in the list of products when the **PRODUCT** key is pressed.

Selecting the “Phone Setup” menu will display whether Mobile Phone support is switched on or off. To change the status, use the ▶ key to highlight the current status and then use the ▲ or ▼ keys to adjust accordingly.

To return to the setup list press ◀. For information on making and receiving calls via mobile phone please refer to section 10.

4.2.5 Radio Setup

From the “WR20 Setup” menu select “Radio Setup”.The WR20 will only control a VHF radio whose black box is connected directly to the wireless base station. If there is no direct connection, the radio can be disabled from the network so that it no longer appears in the product list.

From the “Radio Setup” menu the control of the radio can be enabled/disabled using the **ON/OFF** SoftKey (Fig 4.7).

Fig. 4.7 - Radio Setup

To return to the setup list press ◀.

4.2.6 Select Radio

Note *This option will only be available if there is more than one VHF Radio on the SimNet network.*

From the “WR20 Setup” menu press “Select Radio”. If more than one VHF radio is present on the SimNet network, each one will be identified in the product listing with a unique instance number as shown in (Fig. 4.8).

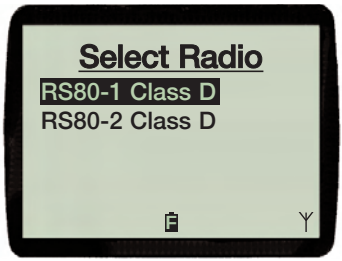


Fig. 4.8 - Selecting a radio

The WR20 will only control the VHF whose black box is connected directly to the wireless base station. If this is RS80-1 Class D in the example above then this radio must be selected from the list. All VHF operation from the handset will then control the selected radio.

From the "Select Radio" menu select the appropriate radio from the list, and press ↵ **MENU**.

To return to the setup list press ◀.

5 PRODUCT SELECTION

5.1 Product recognition

Only WR20 compatible products will be available for selection.

5.2 Selecting from a list

Press the **PRODUCT** key to display a list of products connected to the SimNet Network (Fig. 5.1).

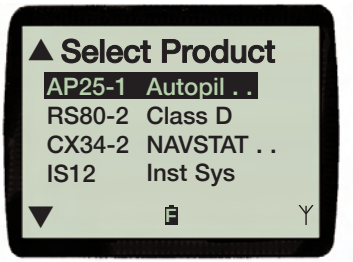


Fig. 5.1 - Product List

Use the ▲ or ▼ keys to highlight the product you require.
If there are more items above those being shown, then ▲ will be displayed in the top left corner of the LCD. If there are more items below those being shown, then ▼ will be displayed in the bottom left corner of the LCD.

Pressing the ↵ **MENU** or ▶ key will select the product. The display will now show the current status of that selected Item.

Pressing the ◀ key will return you to the previous menu.
If a product is not available the display will show the product name at the top of the display and the message.

"Product Not Available"

A product will become "Not Available" if it is under control from a local control at the same time you wish to access it from your handset.

5.3 Disabling remote control

It may be desirable to inhibit remote control of specific products in the network. Details for enabling or disabling remote control can be found in the product's operating instructions.

6 AUTOPILOT

6.1 General

The ability of the WR20 to control many different models of Simrad Autopilots may mean that some of the functions shown in this manual will not be relevant to the model you have purchased. However, the way the information is shown in the display will apply to current and future models. Please refer to the manual that came with your Autopilot for further information.

6.2 Display

Select the Autopilot you wish to control from the product menu. An example Autopilot Standby display (AP25) is shown in (Fig. 6.1), with current compass heading, Thruster 'active' symbol (if available), Rudder Angle Indicator and 'Inactive' symbol, shown by a "☒" in the top right corner of the display. At this stage you do not have control over the selected Autopilot.

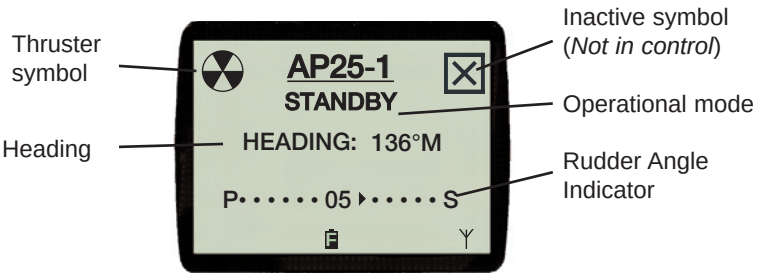


Fig. 6.1 - Standby mode (Inactive)

6.3 Standby mode

To gain control of the Autopilot, press **STBY/AUTO** key. The "Inactive" symbol disappears from the display, and the **MODE** SoftKey function appears (Fig. 6.2).

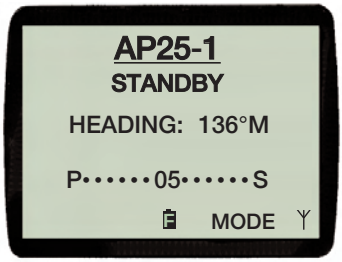


Fig. 6.2 - Standby mode (Active)

In Standby mode pressing the ◀ Port or ▶ Starboard NavPad key will control the rudder. If either key is pressed, the display will indicate "Power Steer" (*Fig. 6.3*).

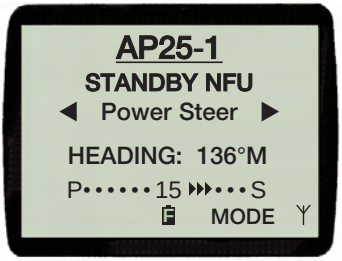


Fig. 6.3 - Powersteer display

Note *As rudder is added in either direction, the display will change to show a single arrow "▸" and a double arrow "▸▸".*

6.4 Steering modes

Pressing the **MODE** SoftKey enters the steering mode menu, "Standby" and "Auto Compass" will be listed as standard. Further options such as Auto NoDrift, Auto Nav and Auto Wind, may be listed depending on the settings of the Autopilot itself (*Fig. 6.4*).

Use the ▲ or ▼ keys to scroll through the menu options. Press the ↵**MENU** key to select the mode you want to enter.

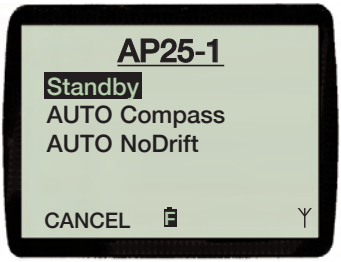


Fig. 6.4 - Steering mode

Pressing **CANCEL** returns you to the previous mode

Note *Throughout this chapter, Pressing the **MODE** SoftKey when available will open the "Steering Mode" menu.*

6.5 Auto Compass mode

Selecting the "Auto Compass" mode from the menu, the following information will be displayed (*Fig. 6.5*) for powerboats and (*Fig. 6.6*) for sailboats.

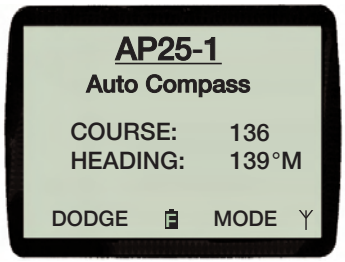


Fig. 6.5 - Auto Compass (Powerboat)

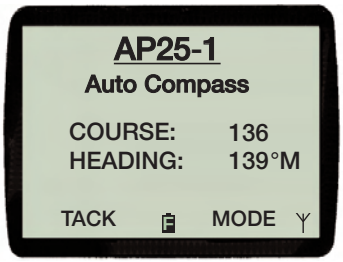


Fig. 6.6 - Auto Compass (Sailboat)

Pressing the ◀ or ▶ Nav key allow you to make course adjustments in 1 degree increments. Holding the key down, makes changes at a rate of 5 degrees per second, until released.

6.5.1 DODGE (Powerboat)

Press the **DODGE** Softkey to initialise a Dodge. The display will change to show "DODGE" flashing in the display (*Fig. 6.7*).

Enter a direction for the Dodge by pressing the ◀ or ▶ Nav key. The amount of turn will increase the longer the key is held down.

Fig. 6.7 - DODGE (Powerboat)

Note *Pressing the **CANCEL** SoftKey returns you to the Auto Compass.*

6.5.2 TACK (Sailboat)

Press the **TACK** SoftKey to initialise a Tack.

Warning

Gybing is not recommended when in Auto Compass mode as the Autopilot has no reference to the point at which the wind changes from one tack to the other.

The display now shows "Tack" flashing and "◄ Press ►" indicating an input is required, Port or Starboard (*Fig. 6.8*).

Fig. 6.8 - Tack display (Sailboat)

Pressing either the ◄ or ► Nav key will initiate a course change, and the boat will start to turn in the selected direction.

The amount of turn is dictated by the Autopilot Course computer and not the WR20 Handset.

Note *If no directional input is given within 5 seconds, the display will return to Auto Compass Mode display.*

Pressing the **CANCEL** SoftKey within 5 second cancels the Tack and returns the boat to the original course.

6.6 Auto NoDrift mode

Selecting the “Auto NoDrift” Mode from the menu, the following information will be displayed (*Fig. 6.9*).

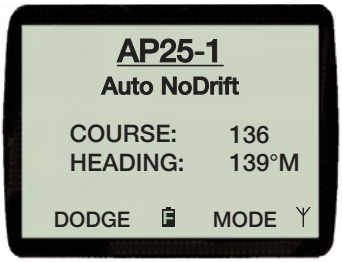


Fig. 6.9 - Auto NoDrift display

Pressing the ◀ or ▶ NavPad key makes fine course adjustments in 1 degree steps. Holding the key down, makes changes at a rate of 5 degrees per second, until released.

6.6.1 DODGE

Refer to section 6.5.1

6.7 Auto Nav mode

As the display is loaded into the WR20 Handset, it will make a short notification beep.

The Auto Nav Prompt display shows all the relevant information for this Mode (*Fig.6.10*).

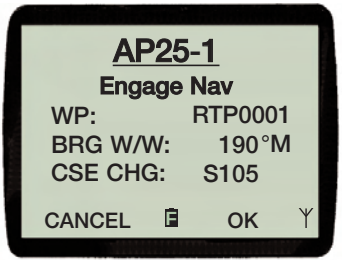


Fig. 6.10 - Auto Nav Prompt display

The system is waiting for confirmation to enter Nav mode. Press the **OK** SoftKey to confirm course change and engage Auto Nav Mode.

Press the **CANCEL** SoftKey to Cancel the Engage Auto Nav Prompt display and return to the previous Mode.

Once confirmed and the Auto Nav Mode is engaged the display shows all relevant information (*Fig. 6.11*).

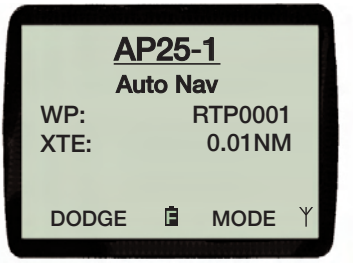


Fig. 6.11 - Auto Nav display

6.7.1 DODGE

Refer to section 6.5.1

Note *The "Engage Nav" prompt also appears when approaching a waypoint. This is a demand for a course change accept when the change onto the next leg exceeds the course change limit (10°, 20° or 30°) as set in the Autopilot installation setup.*

WARNING

If the course change is not acknowledged, the Autopilot will continue on its present heading. This could result in damage to your vessel and serious injury.

6.8 Auto Wind mode

The Auto Wind Display shows all of the relevant information for this Mode (*Fig. 6.12*).

To adjust the wind angle to Port/Starboard, pressing the ◀ or ▶ Nav key will make fine adjustments in 1 degree steps.

Press and holding the Nav key down, changes the wind angle at a rate of 5 degrees per second, until released.

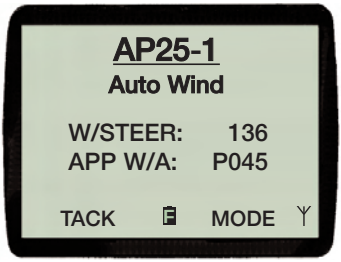


Fig. 6.12 - Auto Wind Mode

6.8.1 TACK/GYBE mode

Note *The function of the left SoftKey is dependent on angular wind data received by the Autopilot. "**TACK**" is only shown when sailing into wind and "**GYBE**" is only shown when sailing with the wind.*

To initialise a Tack/Gybe, press the **TACK/GYBE** SoftKey.

The display now shows "TACK" or "GYBE" flashing on the screen, Press **OK** to confirm this action (*Fig. 6.13*).

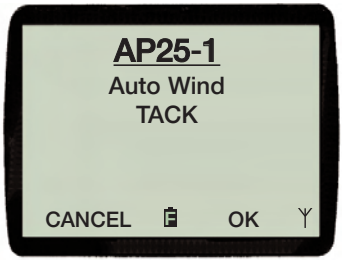


Fig. 6.13 - Tack/Gybe display

Note *If you do not confirm this within 5 seconds the display will return to Auto Wind Mode display.*

Once the Tack or Gybe has been confirmed the boat will start to turn. The rate of turn is dictated by the Autopilot Course computer and not the WR20 Handset.

At this stage, pressing the **CANCEL** SoftKey within 5 second cancels the Tack or Gybe and returns the boat to the original tack.

Once the 5 seconds has elapsed, the display will return to the Auto Compass Mode display.

6.9 Autopilot Alarms

The Autopilots are programmed to provide essential alarms. The alarm message will appear on the WR20, and depending on the operating circumstances the alarm may inhibit some features of the WR20 until the alarm condition is cleared.

Note *For safety reasons an alarm can only be cleared at the Autopilot control head itself and not from the WR20 Handset.*

An audible alarm will sound on the WR20 for as long as the Alarm condition exists, or until the user 'Mutes' the Alarm sound or the condition is cleared at the Autopilot control head.

6.9.1 WR20 Alarm Displays

Once an Alarm 'On' Condition has been received by the WR20, a pop-up Alarm display will be shown (Fig. 6.14).

Fig. 6.14 - Autopilot off course

If the WR20 was previously controlling the Autopilot pressing the **MUTE** SoftKey will silence the alarm, however, the WR20 will not be usable until the alarm condition is cleared at the Autopilot control head. If the WR20 was previously controlling an instrument other than an Autopilot then pressing **MUTE** SoftKey will silence the alarm and the WR20 display will return to the instrument under control. It will not be possible to select the Autopilot from the WR20 until the alarm condition is cleared at the Autopilot control head. In both cases, when the alarm is cleared the WR20 display will briefly show "ALARM CLEARED" before resuming normal operation.

6.9.2 Autopilot 'Volvo IPS Override Warning'

When the Autopilot is overridden from the helm of an IPS steering

system the following message is displayed for 2 seconds (Fig. 6.15).

Fig. 6.15 - Volvo IPS override warning

If the WR20 was previously controlling the Autopilot it will no longer be usable until the override condition is cleared. If the WR20 was previously controlling an instrument other than an Autopilot then following the warning message the WR20 display will return to the instrument under control. It will not be possible to select the Autopilot from the WR20 until the override condition is cleared.

7 VHF RADIO / INTERCOM

7.1 General

The WR20 acts as an additional station to your VHF. Note that a separate cable is required to interface the WR20 Basestation to the VHF black box, (Section 2.4). The WR20 Handset operates the major functions of the VHF including changing channels, adjusting the volume of an attached external loudspeaker and adjusting the radio squelch. In addition intercom calls can be received and initiated between the WR20 Handset and any other station.

7.2 Display

If there is more than one radio on the network please refer to Section 4.2.4 Radio Selection. Select the connected Radio from the product list or alternatively by pressing and holding the **PTT** key for 2 seconds.

An example Radio display (RS80-1) is shown, the following default Information is displayed (Fig. 7.1):

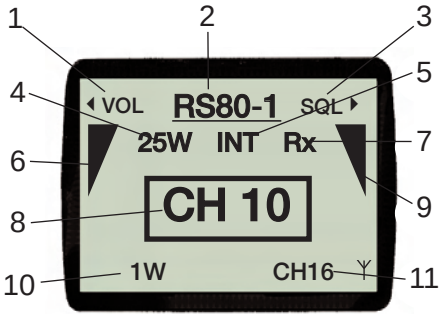


Fig. 7.1 - VHF Main display

1. Title of left bargraph Item 6 (Volume)
2. Current device under WR20 control
3. Title of right bargraph Item 9 (Squelch)
4. Current transmission power
5. Channel Set
6. Bargraph showing volume level
7. Current status Tx/Rx
8. Active channel
9. Bargraph showing Squelch level
10. Left SoftKey function, toggle 1W/25W transmitter power
11. Right SoftKey function 'Select emergency channel 16

Note *Press **PRODUCT** at any time, to see the product list.*

7.3 Changing channels

To select the required channel press the ▲ or ▼ keys to increment or decrement the channel number.

7.4 Volume & squelch adjustment

To select the volume of the external loudspeaker, press the ◀ key.

The display now shows “VOL” highlighted in the display. Use ▲ or ▼ to adjust the volume to the required level.

To select the squelch, press the ▶ key. The display now shows the “SQL” highlighted in the display. Use ▲ or ▼ to adjust the squelch setting.

Adjusting “VOL” or “SQL” is only available for 3 seconds - if ▲ or ▼ are not pressed within this time, their function reverts to channel select.

While the WR20 is in the radio mode, the “VOL” and “SQL” level will be displayed as a bargraph on the left and right hand sides of the display respectively.

7.5 PTT (Push to talk)

Pressing the **PTT** key on the side, will enable the Remote Commander to transmit voice, via the internal microphone, on the selected channel. “Tx” will be shown in the display, and you will hear the reply on the internal speaker when the **PTT** is released.

7.6 Selecting transmission power

Press the **1W/25W** SoftKey to toggle between 1W/25W transmitter power.

7.7 Selecting emergency channel 16

To select Channel 16 press the **CH16** SoftKey. Channel16 is now the active channel and shown in the centre of the display.

Press the ▲ or ▼ key to return to another channel .

7.8 Radio menus options

Pressing the ↵ **MENU** key will display a menu of VHF radio options (Fig. 7.2).

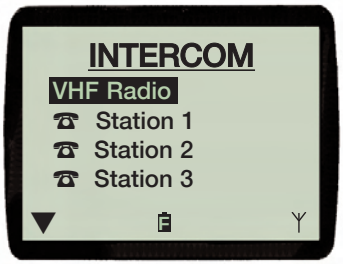


Fig. 7.2 - Radio Options Menu

Use the ▲ or ▼ keys to scroll through the options and highlight the one you require. Press the ↵ **MENU** or ▶ key to enter that option.

If the Radio Options menu has more items above those being displayed, then ▲ will be shown in the top left corner of the LCD. If there are more items below those being displayed, then ▼ will be shown in the bottom left corner of the LCD.

7.8.1 VHF radio

Selecting this option will return you back to the radio display.

7.8.2 Call individual station (Intercom)

It is possible to make an intercom call to a selected position from a handset.

To select an individual station, use the ▲ or ▼ keys to highlight the required station and press ↵ **MENU** or ▶ key (Fig. 7.3).

Once selected, the display will show the station being called. On reply, press the **PTT** key to transmit your message.

Press the **END CALL** SoftKey or ◀ if activated by mistake or the call has finished.

Fig. 7.3 - Intercom

7.8.3 Call all stations (Intercom)

To call all stations, use the ▲ or ▼ keys to highlight the “All Stations” option. This is a broadcast and does not require a response by an end user. Press the **PTT** key to transmit your message.

Pressing the **END CALL** SoftKey will terminate the “All Stations” Intercom call.

8. NAVSTATION

8.1 General

The WR20 Handset is able to control all of the major functions of WR20 compatible Chartplotters, Fishfinders and Navstations.

The WR20 controls these products using both MENU selection and cursor control. Under MENU selection control options are presented in the WR20 screen. In cursor control the WR20 NavPad has the same functionality as the cursor keys on the Navstation.

The availability of features, SoftKey functions, menu items and their order, will be determined by the version of software controlling the primary product under WR20 control. For more information please refer to the product's user manual.

8.2 Display

Select the Navstation you wish to control from the product list. The CX34 is used here as an example.

The first display (referred to as the Top Level Display), allows selection of the operating mode (Fig 8.1).

Fig. 8.1 - PAGE options

Using the ▲ or ▼ keys, highlight the mode you want and press ↵ **MENU** or ▶ key to select it.

Use the ◀ or ▶ Nav keys on the WR20 Handset to go up/down in range on the Navstations primary display.

Note *Pressing the **EXIT** SoftKey from any of the submenu's, will sequentially return you to the Top Level display (as shown in Fig 8.1).*

8.3 Navstation control

Press the **MENU** SoftKey to bring up the four menu options. (Fig. 8.2):

Fig. 8.2 - Menu options

8.3.1 MENU option

"MenuBar" - Equivalent to the MENU key on the main device.
"ADJ Menu" - Equivalent to the ADJ key on the main device.
"Quick Menu" - Equivalent to the ENT key on the main device.
"PWR Menu" - Equivalent to the PWR key on the main device.

Use the ▲▼ keys, highlight the required menu and press ↵ **MENU** to select it.

The corresponding menu will appear on the screen of your primary product and items can be selected using the NavPad.

Press the **EXIT** SoftKey to switch off the menu in the Navstation display.

Press the **CURSOR** SoftKey if cursor control is required. Using the ▲▼◀▶ of the NavPad (Fig. 8.3), you can control the cursor on the display of your primary product.

Fig. 8.3 - Cursor control

Pressing the **WIN** SoftKey allows you to toggle between the active window combinations on the primary products display.

8.3.2. KEY option

Additional primary functions are provided by pressing the **KEY** SoftKey. This provides access to the functions shown in (Fig 8.4).

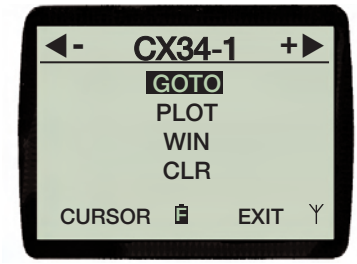


Fig. 8.4 - KEY options

These options provide the same functions as the equivalent keys on the primary product. (Refer to user manual)

Cursor control can also be gained at this stage by pressing the **CURSOR** SoftKey.

8.4 MOB function

Simultaneously pressing the two **MOB** SoftKeys for over 3 seconds activates the MOB (Man Over Board) function. The display will change, as shown in (Fig.8.5), and a few short beeps will be heard from the Handset.

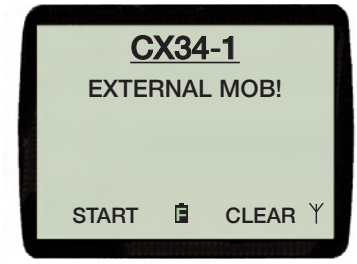


Fig. 8.5 - MOB

If activated by mistake, press the **CLEAR** SoftKey to cancel the MOB.

Press the **START** SoftKey to confirm and start MOB navigation.

All of the relevant information for an efficient rescue operation will be shown on the NavStations primary display.

To turn off an active MOB, please refer to the NavStation user manual.

9 INSTRUMENTS

9.1 General

The WR20 Remote Commander can be used to control all of the major functions of any WR20 compatible instrument that is attached to the network.

Note *In order to view Instrument data on the WR20 display, please refer to section 11.2.*

9.2 Display

After selecting “INST SYS” from the product list, the WR20 display will show a list of instruments attached to the network (Fig. 9.1).

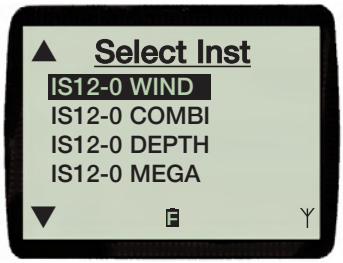


Fig. 9.1 - Instrument selection menu

Using the ▲ or ▼ keys, highlight the instrument you want to control and press the ↵MENU or ▶ key to select it.

If the list of attached instruments has more items above those being displayed, then ▲ will be shown in the top left corner of the LCD. If there are more items below those being displayed, then ▼ will be shown in the bottom left corner of the LCD.

Once selected, the display shows a graphical representation of the instrument keypad, together with the corresponding keys on the WR20 handset that control their functions (Fig 9.2).

In the example shown, the “LIGHTS” key on the Depth instrument is controlled by the ◀ key, and the “DEPTH” alarm by the right hand SoftKey on the handset.

Fig. 9.2 - Depth Instrument

The selected instrument will show “CTRL” flashing briefly in its display.

The text legend shown on the keys in the WR20 display will emulate the keys of the selected instrument.

For information on the functionality of each instruments keys, please refer to the relevant instrument user manual.

Note *When remotely controlling an instrument from the WR20, the result of a key press can be seen in that selected instrument and not in the WR20 display.*

Note *To select a different instrument press* ↵ **MENU** *key and select from the list.*

10 MOBILE PHONE

10.1 General

Your WR20 can be paired with many makes of mobile phone that feature Bluetooth Headset support. The functions that are available will dependent on the specific phone used. Note that when operating in this mode the WR20 is disconnected from the Basestation and will automatically reconnect when the **PRODUCT** key is pressed.

10.2 Enabling mobile phone connectivity

Mobile Phone support can be switched on or off in the "Phone Setup" menu within the "WR20 Setup" menu (4.2.5). When support is enabled "Mobile Phone" appears as a selectable product in the Product list screen. When disabled it does not appear in the product list and the WR20 cannot be used as a remote phone handset.

10.3 Pairing the WR20 with a mobile phone

Ensure that "Mobile Phone" is enabled in the "Phone Setup" menu (Section 4.2.5). When the **PRODUCT** key is pressed "Mobile Phone" will appear at the end of the Product list.

Use the ▲ or ▼ keys to highlight the "Mobile Phone" option, and press the ↵ **MENU** key to select it. The display changes as shown in (Fig. 10.1).

Note *If your phone has previously been Paired, the message "Phone not Paired (Press MENU)" will not appear, and you are able to make or answer a call.*

Fig. 10.1 - Mobile Phone Options

Note *"VOICE DIALING" SoftKey will only be shown if your mobile phone supports this function.*

Press the ↵ **MENU** key to Pair your phone to the Handset. The display changes (Fig. 10.2).

Fig. 10.2 - Phone Menu

Note *If your phone has previously been Paired, "Delete Pairing" will also be shown as a second option in the Phone Menu above.*

Highlight, "Pair to Phone" and press the ↵ **MENU** key to select it.

The Handset enters pairing mode, it generates and displays a security PIN (Fig.10.3).

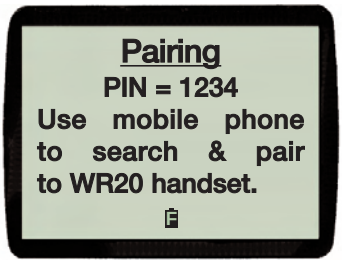


Fig. 10.3 - Pairing

Following the instructions for the particular mobile phone being used, execute a search for Bluetooth devices.

Select the "WR20" on the mobile phone and when prompted enter the PIN (passcode) on the mobile phone.

Once paired, the WR20 Handset will support the same features as a Bluetooth headset which will be dependent on the phone used. The WR20 display reverts to the Mobile Phone display.

10.4 Making/receiving calls

From the top level product list select “Mobile Phone”.The display will change as shown in (Fig. 10.4).

Fig. 10.4 - Mobile Phone Options

For the features available please refer to the phone’s user manual.

The following common features may be used as a guideline.

- The audio volume can be controlled using the ▲ or ▼ keys on the NavPad.
- Calls initiated on the mobile phone will be simultaneously available on the WR20.
- Calls can be ended by pressing the SoftKey on the WR20.
- Incoming calls can be answered directly on the WR20 by pressing the SoftKey.
- Pressing the SoftKey will initiate a call to the last number dialled.
- The **VOICE DIALING** SoftKey can be used with phones that support voice dialling and have voice tags already set. Press the **VOICE DIALING** SoftKey and follow the same procedure as for your mobile phone.

10.5 Range

Most mobile phones support Bluetooth Class 11 which have a more limited range than Class 1. This means that the distance between the mobile phone and WR20 Handset should be within the same range limits as for a Bluetooth Headset (typically up to 10m).

10.6 Reconnect to Basestation

To reconnect to the WR20 Basestation at any time press the **PRODUCT** key. This will hangup any calls in progress.

Note *It is not necessary to press the **PTT** key when using the WR20 Handset in mobile phone mode.*

11 DATA DISPLAYS

11.1 General

The WR20 can display data from various sources on the network simultaneously. The display is user configurable both in terms of the type of data to be shown and also the number of lines of data in the display (maximum of 4). If only 1 or 2 Data Items are to be displayed, then the size of the displayed data is enlarged. The units in which data is displayed are also selectable, please refer to Section 4.2.2.

11.2 Display

After selecting “DataPages” from the product menu, the WR20 display will show a list of available pages (Fig. 11.1).

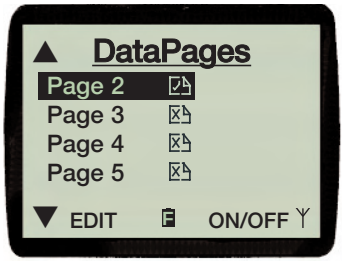


Fig. 11.1 - DataPages menu

The pages are pre-configured at the factory however they can be customised as required.

Using the ▲ or ▼ keys, highlight the one you want to view and press the ↵ MENU or ▶ key to select it.

If there are more pages above those being displayed, then ▲ will be shown in the top left corner of the LCD. If there are more pages below those being displayed, then ▼ will be shown in the bottom left corner of the LCD.

Once a page has been selected, the display will show the Simrad Group data associated with that page. An example is shown in (Fig. 11.2).

To scroll to the next data page press the ▲ or ▼ key.

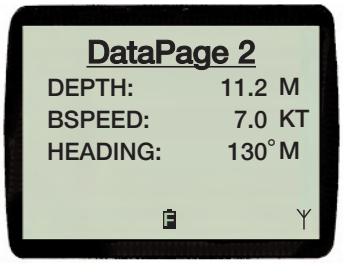


Fig. 11.2 - An example DataPage

Note *Information from sources not controllable by the WR20 will be displayed if the data has been converted to SimNet format. For example, data from an NMEA source converted to SimNet using an AT10 converter.*

11.2.1 Selecting DataPages for viewing

For clarity and ease of use, DataPages can be turned off if not required, so that when scrolling through them, only the ones you wish to view are displayed.

From the "Edit DataPage" menu (Fig. 11.1), highlight the DataPage you want to turn on or off and press the **ON/OFF** SoftKey. This will toggle the state of that selected DataPage between "☑" (On), and "☒"(Off).

11.3 Configuring DataPages

DataPages can be customised for user preference. Configuration screens can be reached in one of two ways. Directly from the "DataPage" menu by selecting the DataPage to be configured and then pressing the **EDIT** SoftKey as shown in (Fig. 11.1).

Alternatively any DataPage that is being viewed can be modified by pressing the ↵ **MENU** key. Either method will take you to the screen shown in (Fig. 11.3)

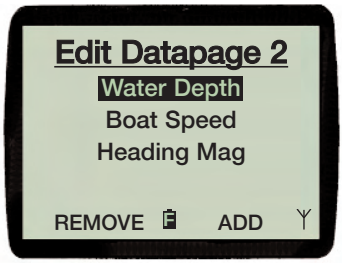


Fig. 11.3 - Edit DataPage screen

11.3.1 Adding a DataPage item

On entering the "Edit DataPage" screen, the display shows the current data. Press the **ADD** SoftKey and the display changes to show a list of "Data groups" available (Fig. 11.4).

Fig. 11.4 - Data group list

The available groups are:

- **Heading Data**
- **Navigation**
- **Wind Data**
- **Speed & Log**
- **Environmental**
- **Depth Data**
- **Pilot Data**
- **Position**

Using the ▲ or ▼ keys, highlight the required Data Group and press the ↵MENU or ▶ key to select it. This brings you to a sub-menu of items for that selected Data Group (Fig. 11.5). For a full list of Data Group Items refer to page 62.

Fig. 11.5 - Selected group item list

Using the ▲ or ▼ keys, highlight the Data Item required, and press the ↵ MENU or ▶ key to accept. This will return you to the "Edit DataPage" screen.

To continue adding items, repeat the stages from the beginning of this section (11.3.1) or to accept the change and display the new DataPage press the ◀ key (Fig.11.6).

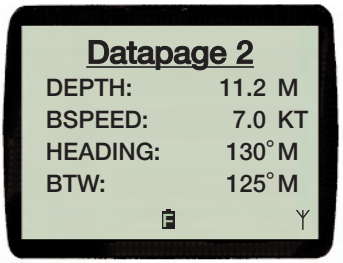


Fig. 11.6 - New DataPage

11.3.2 Exchanging a DataPage item

On entering the "Edit DataPage" screen (Fig 11.3), the display shows the current data. Use the ▲ or ▼ keys to highlight the Data Item you want to exchange and press the ↵ MENU key (Fig. 11.7).

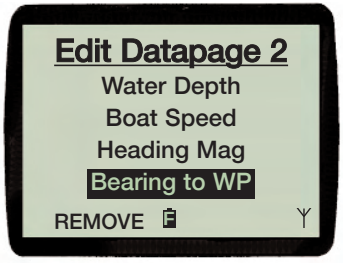


Fig. 11.7 - Edit DataPage screen

The display changes to show the list of Data Groups available, highlighting by default, the Data Group which the current Data Item being exchanged comes from (Fig. 11.8).

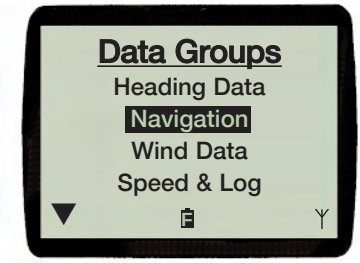


Fig. 11.8 - Data group list

If you require another item from the same Data Group press the ↵MENU or ▶ key.

If you require an item from another Data Group, use the ▲ or ▼ keys to scroll through the available Groups and highlight the one you want. Press the ↵MENU or ▶ key to select it. This brings you to a sub-menu of items for the selected Data Group (Fig. 11.9).

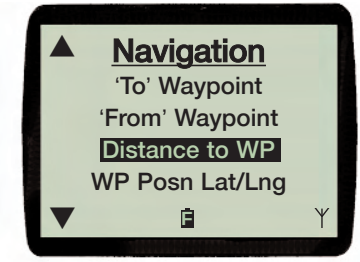


Fig. 11.9 - Selected group item list

For a full list of Data Groups and their associated items, refer to page 62.

Using the ▲ or ▼ keys, highlight the Data Item required, and press the ↵MENU or ▶ key to accept. This will return you to the "Edit DataPage" screen.

To continue exchanging items, repeat the stages from the beginning of this section (11.3.2) or to accept the change and display the new DataPage press the ◀ key (Fig.11.10).

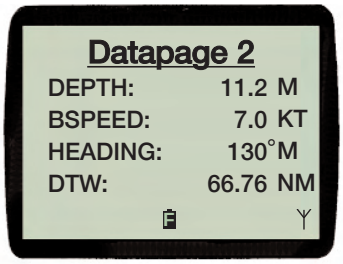


Fig. 11.10 - New DataPage

11.3.3 Removing a DataPage item

On entering the "Edit DataPage" screen, the display shows the current data. Use the ▲ or ▼ keys to highlight the Data Item you want to remove, then press the **REMOVE** SoftKey to delete the selected item.

Note *The **ADD** SoftKey will always be present if there are less than 4 items on the DataPage.*

11.4 Data Groups and Items List

The full list of Data Groups (in bold), and Data Items for that group are as follows:

Heading Data	Heading Mag
	Mag Variation
	Heading True
	COG Magnetic
	COG True
Navigation	Cross Track Err
	Bearing to WP
	Bearing WP/WP
	'To' Waypoint
	'From' Waypoint
	Distance to WP
	WP Posn Lat/Lng
	WP Latitude
	WP Longitude
	Time to WP

Wind Data	App Wind Angle App Wind Speed Tru Wind Angle Tru Wind Speed
Speed & Log	Boat Speed Speed Over Gnd Cumulative Log Trip Distance Race Timer
Environmental	Sea Temp
Depth Data	Water Depth Shallow Alarm Deep Alarm
Pilot Data	Rudder Angle
Position	Posn Lat/Lng Posn Latitude Posn Longitude Time UTC Date DD/MM/YY Date MM/DD/YY

12 APPENDIX

12.1 Maintenance and battery replacement

The WR20 Handset and Basestation are sealed waterproof units. To create and maintain their waterproof integrity they were assembled in a controlled environment using special equipment. The units are not user maintainable and under no circumstances should they be opened. For battery replacement or other service please contact your local authorised Simrad Service Agent.

12.2 Pairing the Basestation and Handset

The Basestation and Handset provided in the box come as paired units. If for any reason it is necessary to pair a Handset to a different Basestation or vice versa the procedure is as follows.

Step 1.

Use a pointed instrument to depress the light button on the base of the WB20 Basestation for between 3 and 5 seconds.

Step 2.

On release the light will flash twice in 1 second then off for 1 second. If this does not happen, repeat from step 1.

Step 3.

Hold the WR20 Handset within reach of the Basestation, enter the “Setup” and “Installation” menu and select “Pair to WB20”.

When successfully paired the product list appears in full when the **PRODUCT** key is pressed on the WR20 Handset.

12.3 Troubleshooting

These simple checks should be carried out before seeking technical assistance and may save time and expense.

General Symptoms	Possible Cause	Remedy
Handset will not switch on	• Battery Not Charged	• Re-charge battery
Communication Failure	• Handset out of Range of Basestation • Handset not Paired to Basestation	• Move handset closer to Basestation • Pair Handset to Basestation (Section 12.2)
No backlighting	• Light level set at 0	• Increase light level (Section 4.2.1.1)
Product under control not responding	• Communication conflict	• Press product key to refresh display
Data missing from data pages	• Only data that is on the network will be displayed	• Ensure data is being sent out on the network.

Before contacting your servicing agent, please note the unit's serial number.

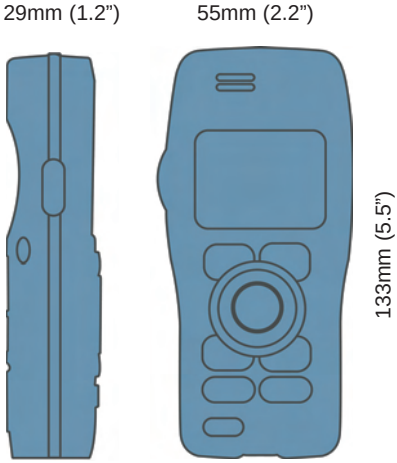
12.4 Spares & accessories

The following spares and accessories are available from local Simrad agents.

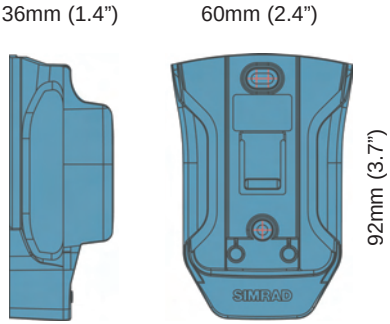
EXPC05*	VHF Cable (5 meters)
EXPC20*	VHF Cable (20 meters)
LS80	External waterproof VHF Loudspeaker
MAR50	240v Mains Handset charger

** One off required to connect Basestation to RS80 series VHF.*

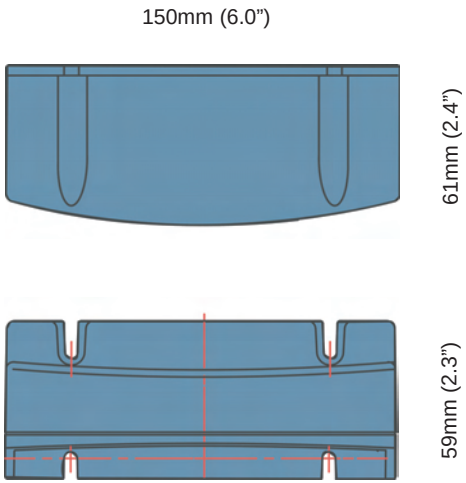
12.5 Dimensions



WR20 RemoteCommander



WR20 Battery Charger



WR20 Base Station

12.6 Specification

Remote Commander Handset

Weight:	150g
Waterproof:	IP67
Display size:	35mm x 25mm, 128x64
Backlight:	Red or White (selectable)
Battery Capacity:	1600mAh
Battery Type:	Rechargeable Li-Ion
Wireless System:	Bluetooth Class 1
Environment:	-10C to +55C

Rechargeable Cradle

Supply Voltage:	12VDC

Basestation

Waterproof:	IP67
Wireless System:	Bluetooth Class 1
Power Supply:	Direct from SimNet Bus
Connectors:	2x SimNet Ports, 1x VHF Port
Environment:	-10C to +55C

Note: Specifications are subject to change without notice

12.7 Service & warranty

If it is necessary to have a unit repaired, please contact your local authorised Simrad dealer.

For worldwide warranty details and a list of authorised Simrad agents please refer to the Warranty Card supplied with this unit.

12.8 Declaration of Conformity (EU)

English	Hereby, Simrad Limited (Margate) declares that this RS81/82 VHF Radio is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Simrad Limited (Margate) vakuuttaa täten että RS81/82 VHF Radio tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart Simrad Limited (Margate) dat het toestel RS81/82 VHF Radio in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
French	Par la présente, Simrad Limited (Margate) déclare que ce RS81/82 VHF Radio est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.
Swedish	Härmed intygar Simrad Limited (Margate) att denna RS81/82 VHF Radio står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede Simrad Limited (Margate) erklærer herved, at følgende udstyr RS81/82 VHF Radio overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
German	Hiermit erklärt Simrad Limited (Margate), dass sich dieses RS81/82 VHF Radio in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. (BMWi)
Greek	Με την παρουσα Simrad Limited (Margate) δηλωνει οτι RS81/82 VHF Radio συμμορφωνεται προς τις ουσιωδεις απαιτησεις και τις λοιπες σχετικες διαταξεις της οδηγιας 1999/5/ΕΚ.
Italian	Con la presente Simrad Limited (Margate) dichiara che questo RS81/82 VHF Radio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente Simrad Limited (Margate) declara que el RS81/82 VHF Radio cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Portuguese	Simrad Limited (Margate) declara que este RS81/82 VHF Radio está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.

Website – www.simradyachting.com

12.9 Declaration of Conformity (USA)

WR20 RemoteCommander and WB20 Basestation

FCC Class B Certification

This above mentioned devices comply with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- These devices may not cause harmful interference, and
- These devices must accept any interference received, including interference that may cause undesired operation.

Warning! 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 a 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 distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.

Consult the dealer or an experienced radio/TV technician for help.
You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.