Documentation ScanNav
# Repeaters configuration

Table of contents

Introduction

Repeaters can be accessed via the "Displays" ⇒ "Displays ..." menu, with the exception of the "Route Follow up" repeater which has a dedicated entry and is described at the end of this document.

They are grouped into 3 categories:

- "Navigation": These are the instruments used or calculated by ScanNav in the navigation functions
- "Sensors": These are generic sensors that can be displayed and/or kept in the track
- from version 23.1, a third tab "All" groups the navigation repeaters and the sensors in the same list, thus making it possible to manipulate them all together regardless of their type (see next chapter).

Check the boxes individually to show/hide sensors individually, or use the toolbar button 🔢 to hide/show all pre-configured repeaters.
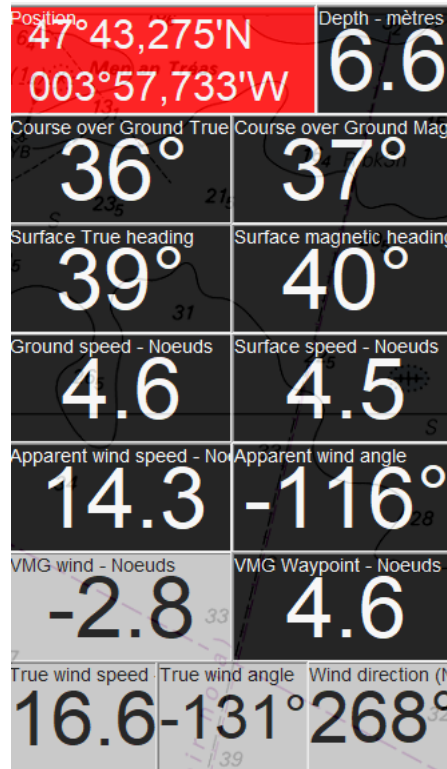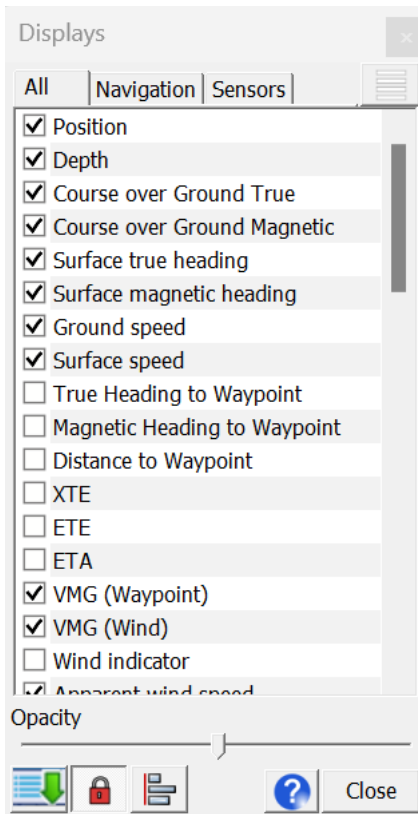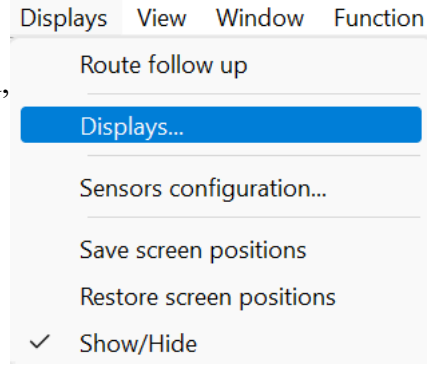
You have access to various repeaters to display the information issued from the GPS and other connected instruments. Unavailable information is represented with the « -- » symbol. For example on the the opposite screen-shot, only the GPS is connected, so information from wind, loch, etc… are not available.

These repeaters can be positioned and resized individually. To move a repeater, left-click on it and drag. To resize a repeater, position the mouse over one of its edges until the cursor changes shape, then click and drag. The font size will automatically adapt to the size of the repeater. You can also double-click on a repeater to put it in full screen temporarily. Just double-click it again to revert it to its original size.

Layout of repeaters

From version 23.1, the layout of the repeaters is greatly simplified

The layout is now saved based on the screen configuration. You can thus have different repeaters layouts depending on whether you are in portrait or landscape mode, or when changing screen configuration (single or multi screen, etc.)

The Repeaters window has additional tools to organize repeaters in a grouped fashion according to a current selection, with the toolbar at the bottom of the window:
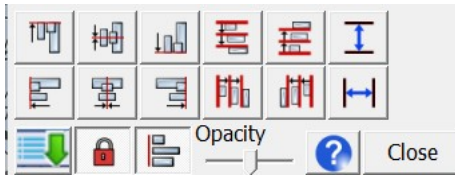
- The "menu" (left), "help" and "close" (right) buttons do not change
- The padlock is used to lock the repeaters in their position by prohibiting interactions with the mouse. This avoids moving them inadvertently. In this mode, only the double-click can put the repeater in full screen or restore it to its original position. Other mouse interactions being relayed to the underlying window. In addition, a repeater is automatically locked when it goes full screen, if it has an opacity level allowing a minimum of seeing through.
- The 3rd "alignments" button opens the 2 rows of buttons above when it is checked. These allow you to make alignments on the "selected" repeaters, and are not present when the button is not activated.
- The opacity slider lets you set the opacity on all the selected elements to the same value.
- The arrangement of these buttons adapts according to the width of the dialog, so they may be different from the screenshot above if the window is narrower.

A third tab "All" groups the navigation repeaters and the sensors in the same list, thus making it possible to manipulate them all together regardless of their type

The repeaters window is opened either via the "repeaters" menu, or by double-clicking on the repeaters icon on the main toolbar (previously opened the dialog to open an existing configuration)

Definition of Selection

The selected repeaters are those highlighted in blue in the list. This selection can be made by manipulating the list (click&drag, click with "Ctrl" or "Shift" ... according to list standards), or by clicking on the repeaters themselves (clicking on a repeater without moving the mouse to Select/Deselect). The top right button allows you to select or deselect all. This being a 3-state button (full, partial, or nil selection)

The selection state is also put in evidence on the repeaters themselves, with a frame present on the selected repeaters, in order to visualize on which repeaters the actions will be carried out. The frame is either red and blue or green and red with a thicker line to indicate the last repeater selected, which will serve as a reference for certain alignments. (2 colors allows to be visible regardless of the background color). The visualization of the selection on the repeaters disappears when the focus returns to the map (click on the map), and reappears on the first click on a repeater or in the repeaters window.

All selected repeaters are manipulated together, excluding unselected ones (moving and resizing by manipulating a repeater, and alignments or opacities with the buttons above)

Alignments

The different alignment buttons are distributed over 2 lines: the lower one for the horizontal alignments (movements on the X axis), and the upper one for the vertical ones (movement on the Y axis), with 6 columns:

1: Align Top / Left
2: Vertical/Horizontal Center Alignment
3: Align Bottom / Right
4: Top to bottom / left to right distribution
5: Bottom-to-top / right-to-left distribution
6: Make repeaters the same Height/Width

The last element selected is taken as a reference for horizontal/vertical alignment (2) or Height/Width resizing (6). The other types use the highest/lowest or the most left/right repeater as a reference, depending on the type of alignment or distribution.

Repeaters settings

Each repeater can be set individually by right-clicking on it and selecting the "properties" entry. This brings up a dialog box allowing you to choose the background and text colors, the transparency level, and unity for the most part.

"Floating point precision" specifies the desired precision after the decimal point.

To adjust the level of transparency, move the "opacity" slider to the right for more opacity, or to the left for more transparency. Unlike the other parameters, this adjustment is immediate without having to validate with the "OK" button

By checking the "Apply to all" box, the opacity level applies to all repeaters while manipulating the slider. If this box is checked when validating with OK, the other parameters are also applied to all the repeaters.

Repeater layout and settings can be saved to named configurations and restored later, using the "Save Positions" and "Restore Positions" entries in the Displays menu.
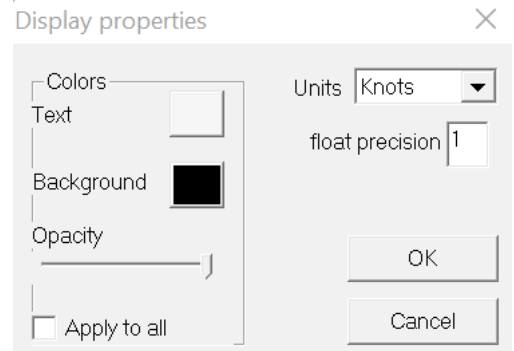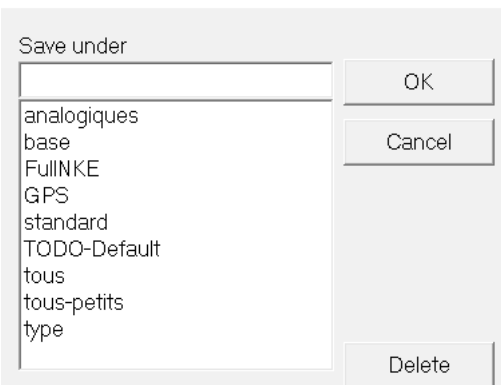
«**Save positions** » opens the dialog opposite.

- type a new name in the "save as" field or select an existing name from the list to save the repeater positions under that name
- select an entry then "delete" to clean up
- nothing is effective before validating with "OK" (if you cancel, the deleted elements will come back)

«**Restore positions** » : A similar dialog is displayed without the "save as" field. Select the desired line and click "ok" to restore the corresponding settings

Note: When restoring a layout, if the screen configuration is different from the one used for saving, it will be adapted to fit in the current screen.

Specific repeaters

Some navigation repeaters have specific settings.

Heading correction

This repeater allows you to view the deviation from the route and the various other parameters relating to the destination waypoint. GPS is sufficient for this repeater. This consists of the following information:

- Destination Waypoint Name
- Distance to Waypoint
- ETE or ETA at your choice choix (Estimated Time Enroute, or Estimated Time of Arrival)
- VMG waypoint : Velocity Made Good to Waypoint
- A graduated compass (true ground bearing), (outside circle in blue)
- An internal graduated circle giving the Heading correction (in red)

- An arrow indicating the direction you should head to. This changes color according to where you need to steer to:
  - Green. If you need to turn starboard
  - Red if you need to turn port
  - Blue if you can go straight ahead.
- Indication of the number of degrees to take to starboard or port. In the case above, the course to follow is 100, but the helmsman is holding a course of 129. You must therefore take 29° to port, and the arrow is therefore red.
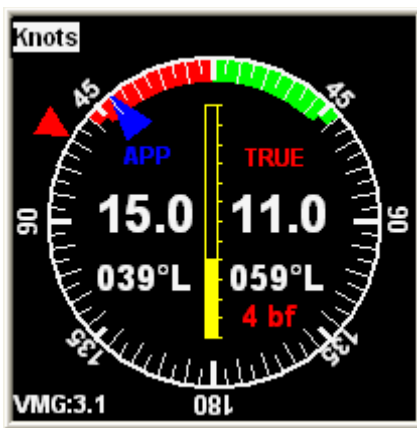
The heading correction repeater can be configured by clicking on it with the right mouse button, and selecting the "properties" entry from the contextual menu which brings up the dialog box opposite.

Compas properties

Colors

Text   Background

interior rose   exterior rose

Time shown
- ○ Estimated Time Enroute (ETE)
- ● Estimated Time of Arrival (ETA)

Distance unit
- ● Nautical miles (nm)
- ○ Kilometers (km)

VMG unit
- ● Knots (kt)
- ○ Kilometers per hour (km/h)

Opacity

OK   Cancel

Wind indicator:

Knots

45   45

APP   TRUE

15.0   11.0

039°L   059°L
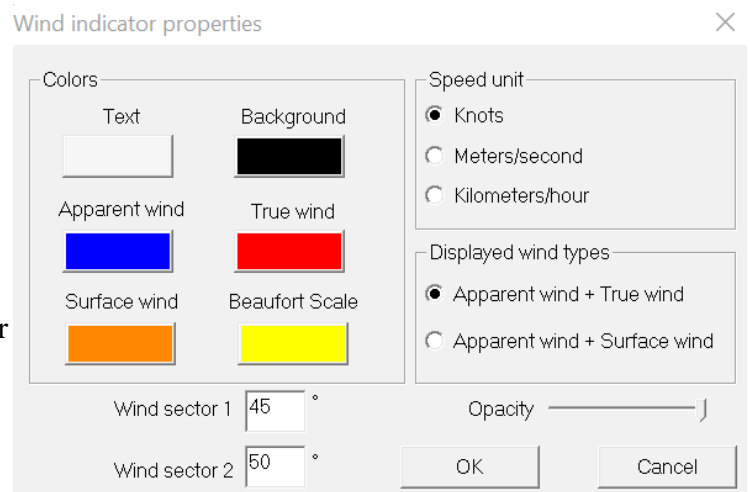
4 bf

90   90

135   135

VMG:3.1   180
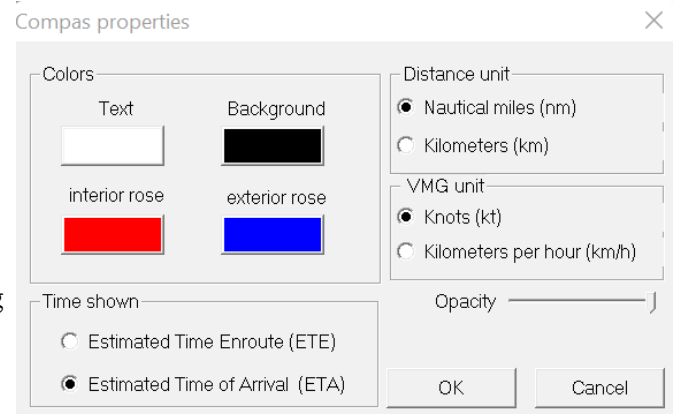
- Apparent (**APP**) wind speed and direction show up on left hand side, and choice between true (**TRUE**) or surface (**SURF**) on the right hand side, speed unit (configurable) being recalled at the top-left of the display.
- The Central bar indicates the Beaufort Scale from 0 to 12, the digital value being recalled at the bottom-right with the same color as the TRUE wind
- The inside arrow (here in blue) represents the direction of apparent wind, and the outside arrow (here in red) the true wind or surface wind direction
- VMG (Velocity Made Good) relative to wind, i.e. speed at which you progress towards wind, is indicated at bottom-left. It is positive Up-wind, and negative Down-wind.

You can choose to show either the True or Surface wind in the right hand side of the display:

- **"True"** wind: represents the wind that really blows, and that you would get if you where standing at a fixed spot on earth. This is calculated from the following information:
  - Apparent wind issued from the wind indicator
  - Ground heading and speed issued from the GPS
  - Compass heading. This helps to get the drift of the boat (inherent to the boat heading and due to the current). Warning: If this information is not available you will still get a True wind indication, as if the boat didn't drift at all, as it still can be useful.
- « **Surface** » wind: Represents the wind you would get if the boat was still at the surface of the water, like a cork drifting with the current. It lets you know more precisely what wind you will get when changing tack in an area with a lot of current/stream. But it doesn't take in account the boat's inherent drift.

Wind indicator properties

Colors

Text   Background

Apparent wind   True wind

Surface wind   Beaufort Scale

Wind sector 1   45 °

Wind sector 2   50 °

Speed unit
- ● Knots
- ○ Meters/second
- ○ Kilometers/hour

Displayed wind types
- ● Apparent wind + True wind
- ○ Apparent wind + Surface wind

Opacity

OK   Cancel

Wind sectors 1 and 2 let you customize 2 areas of different thickness so as to fit the best your boat's characteristics.

Distance and Bearings display

This display shows the same information as the status bar in navigation mode, in a more visible way.

Distances and Bearings
47°32,6730'N 002°53,6630'W
50°19,5793'N 009°13,6919'W
Bear:306.13° True / 306.43° Mag
Dist:300.139nm / 555.857 km
Decl:-2.89°

The first line gives the position of the boat, or the position of the point clicked when using the ⛴ tool; the second line the position under the cursor; then follow the bearing and distance between the 2 points, and the declination.

The default settings should be fine for most, but you can choose what is displayed in this window, as well as what is in the status bar. The parameterization of this choice is however quite technical, and requires having good notions on the manipulation of Windows registry.

This repeater has the same possibilities as the others (variable size, position, colors, etc.)

Generic Sensors

You can interface any sensor type with an **NMEA183** or **NMEA2000** output interface. This includes all the sensors received via the generic "**XDR**" Nmea sentence, plus some exceptions using the following sentences managed according to the same principle:

- MHU : Humidity (Dew point, absolute and relative Humidity)
- MMB : Barometer
- MTA : Air temperature
- MTW : Water temperature
- ROT : Rate of Turn
- RPM : Shaft or Engine revolution rate
- RSA : Rudder Sensor Angle
- VLW : Ground/Water Distance traveled, cumulative and/or since last reset
- VBW : Ground/Water Transverse drift

For **NMEA 2000**, a list of sensors is pre-configured by default, and it is possible to configure others. See Nmea 2000 chapter in the release notes for more details.
- PGNs 130310 to 130316 corresponding to environmental sensors – Temperatures, Pressure, Humidity
- PGN 127488 Engine Parameters, Rapid Update
- PGN 128275 (VLW equivalent)

Only correctly configured PGNs will appear in the list. The identifier is the PGN number followed by the type of sensor and emitting source. The name is initialized by the default value of the configuration file, and can be modified by the user.

Generic sensors can be taken into account:
- As additional **real-time repeaters**
- and/or **logged in the track**

They are detected automatically, and accessed via the "Sensors" tab of the "Displays" window. The entries present in the list will depend on what is detected on the Nmea port, and configured in the interface.

Sensors configuration   ✕

T..	Ident	Name	Menu	Track
A	mastangle	A_mastangle	☑	☐
A	PTCH	A_PTCH	☑	☐
A	ROLL	A_ROLL	☑	☐
A	RUDDER	A_RUDDER	☑	☐
C	AirTemp	C_AirTemp	☑	☑
C	WTEMP	C_WTEMP	☑	☑
P	Barometer	P_Barometer	☑	☑
U	BatWiFi	U_BatWiFi	☑	☑

OK   Cancel

- Entry "**Sensors Configuration**" of the menu lets you configure detected sensors using the window opposite
- The first column indicates the type of information provided: Angle, temperature, voltage, etc.
- "Ident" is the keyword as provided in the Nmea sentence
- "Name" is the display name of the sensor. By default it is a combination of the type and Ident, for
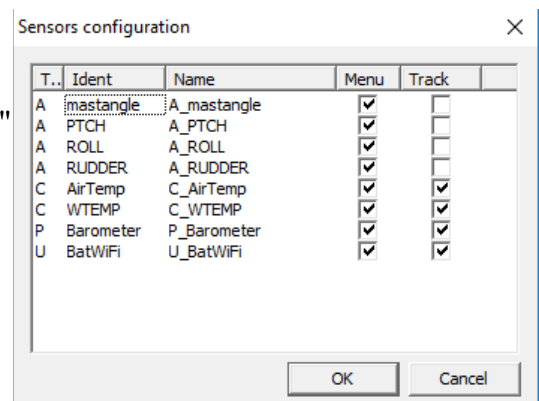
example "A_mastangle". But it is possible to edit it to give a more meaningful name by double-clicking on it. For example "Pitch" rather than "A_PTCH". To revert to the default value, simply clear the field.

• The "Menu" column makes it possible not to propose the sensor in the "Displays" window, if it does not interest us.

• The "Track" option allows you to log the information for posterior use in the track analysis, tooltips and track details. It should however be noted that some sensors, such as the rudder angle, may have a high refresh rate, which is very useful in real-time repeaters, but can also significantly increase the track weight. You should therefore make sure to just check entries for which you will have some further usage, which is dependent on each user.

Route followup repeater

This repeater behaves differently from other repeaters. It allows to display the estimates of the ETE and ETA on the different points of the active route, according to the real time conditions.

Active route						
Name	ETA	ETE	ETE acc...	Distance	Speed	COG
WPT1	23:38	00h15mn	00h15mn	1.40nm	5.40kt	330°
WPT2	02:29	02h50mn	03h06mn	21.40nm	7.50kt	332°
WPT3	03:05	00h36mn	03h42mn	3.93nm	6.40kt	031°
WPT4	03:29	00h23mn	04h06mn	2.10nm	5.40kt	042°
WPT5	04:52	01h21mn	05h27mn	7.30nm	5.40kt	062°

Several information are available in separate columns. They can be configured by right-clicking in the window to open the contextual menu and choosing the "Columns configuration" entry.

- ETA : Estimated Time of Arrival (the date is also indicated above 24h).
- ETE : Estimated Time Enroute for each individual route segment.
- ETE accumulated: Estimated Time Enroute to waypoint starting from the current position
- Distance: Distance in Nautical miles of each individual route segment
- Speed: Estimated speed (VMG) for each individual route segment .
- COG: Course Over Ground to follow for each segment.

The first line corresponds to the present destination waypoint. Speed and ETE/ETA are deducted from the instant VMG to the waypoint (values should be identical to the individual ETE/ETA Displays)

Estimated values for the following waypoints can be calculated according different methods to choose between the following using the contextual menu:

- Route values: Fixed speed for each segment, defined in the route properties (refer to the chapter Routes further in this document)

- Constant VMG: The speed is set to the current VMG for all segments (route properties are ignored).

- VMG+Route combined: The speed given in the route properties for each segment is combined with the present VMG. For example, if the speed defined in the route for the current segment is 8 knots, but he current VMG is only 4 knots, a ratio of 1/2 will be applied to estimated speeds for the following segments compared to their definition in the route properties.