TECDIS

User Guide

Contents

Revision history

Version no	Date	Changes	Author
1.00	2017.03.28	Initial release	CH

About this guide

Welcome to TECDIS!

And thank you for using our system!

We - the creators of TECDIS - are proud to present you with the new TECDIS 4.8.3.

This is a new generation of TECDIS software compliant with the latest standards and filled with great features to ensure your voyages are planned and sailed to the highest standards of safety and efficiency.

This user guide is one of several parts of the user documentation for TECDIS. The other parts are either more specialized or more complete, this guide is here to give you a general understanding of what TECDIS is, and how it works.

This manual is intended for TECDIS version 4.8.3 and above.

The Telko Team

The other TECDIS documents

Place for updated documents and version numbers

ECDIS and paperless sailing

ECDIS stands for Electronic Chart Display and Information System, and is a standardised system for electronic navigation, voyage planning and voyage monitoring.

An ECDIS system consists of a type-approved computer unit made for maritime use, together with a software designed to display and maintain electronic charts. An ECDIS is also required to have a specified set of tools to aid in navigation, including EBL/VRM, antigrounding alerts, route tools and reporting functions.

With a backup solution approved by the vessels flag state (and vessel class), an ECDIS equipped vessel is capable of paperless sailing.

TECDIS is certified by the ECDIS standard as specified by IMO and the SOLAS convention, and can be used for paperless navigation.

TECDIS is designed to be easy to use without compromizing on advanced functionality or safety.

Compliance

TECDIS version 4.8.3 complies to the following standards and other normative documents:

- Marine Equipment Directive, Annex A.1, item No A.1/4.30
- Marine Equipment Directive, Annex B, Module B (MED-B)
- IMO Resolution A.694(17)
- IMO Resolution MSC.191(79)
- IMO Resolution MSC.232(82)

- IHO Presentation Library 4.0.x
- S-57 Edition 3.1
- S-63 Edition 1.2.0 Data Protection scheme
- S-64 Edition 3.0.1

The list above is not exhaustive, for more information visit www.telko.no or contact support@telko.no.

Electronic charts

TECDIS uses electronic charts that are processed into seamless databases of charts. These charts are vector based, and can therefore be scaled as the user desires, and the only limit to usability is the amount of information in the displayed chart.

The electronic charts in TECDIS are provided by separate chart suppliers, and can be licensed as a service with subscription or as single purchase.

Please contact your desired chart supplier for more information on available options.

In TECDIS the chart databases are exclusive to each chart product. You can install the following chart formats:
- CM93/3 SENC-compiled charts(Professional+, ENC, ENC+ and CESN)
- S57 unencrypted and uncompiled charts
- S63 encrypted, uncompiled charts (AVCS, PRIMAR)

C-Map professional+ and ENC charts are preinstalled, as their licensing system allows charts to be added without licenses.

The Professional+ charts are good to have, regardless of what chart provider you use, as even unlicensed they provide you with world scale chart coverage.
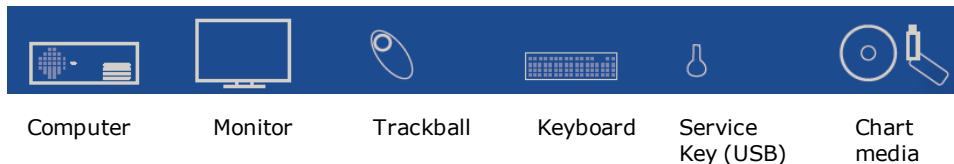
1 An overview of TECDIS

A TECDIS unit consists of:

| Computer | Monitor | Trackball | Keyboard | Service Key (USB) | Chart media |

Getting started

TECDIS as a system has to be installed by a qualified service technician. Therefore, when you start using TECDIS it is already set up for you, with charts and sensor data present. Most likely, your TECDIS is also already running, as it will be continuously for the coming years.

TECDIS starts automatically when you turn on the computer.
Windows desktop is only available with TECDIS Service Key inserted (the Service Key should be controlled by the primary navigation officer).

User-related settings are changed within the TECDIS program, while more important system settings and chart licensing are generally only available from separate programs such as TECDIS Setup and S63 Chart Loader.

Updating the software and the charts

The TECDIS program has to be manually updated with updates available from www.telko.no, as it is not connected to the general internet. These updates are available for free for all TECDIS units, and are released 3-4 times a year.
In order to sail paperless, a TECDIS system has to have updated charts at all times. Generally this means that weekly chart updates are necessary. Contact your chart provider for more information on the best way to keep your TECDIS with updated charts.

An overview of TECDIS

Peripherals

TECDIS can be used solely with the trackball or the keyboard for most tasks. Most fields that require text input are accompanied by a software keyboard, and the keyboard has several shortcuts:

F1: Info on chart functions
F2: Chart query by cursor
F3: Name search*
F4: Chart Legend
F5: Settings menu
F6: Route menu
F7: Mariner symbol object menu
F8: Mariner line/area object menu
F9: Timestamp past track
F10: Man over board (MOB)
F11: Own ship position fix
F12: Event mark

1. Screen day/dusk/night colours
2. Display orientation
3. STD S52 AUTO presentation
4. "USER" presentation
5. Conning display
6. Weather display*
7. Radaroverlay*
8. EBL/VRM functions
9. ARPA
0. AIS

W-A-B-C-D-E-F-G: Chart levels
S: Dead reckoning

Arrow
keys: Move chart
Pg Up: Zoom out at selected level
Pg Dn: Zoom in at selected level
- : Zoom out auto level
Ins: Move cursor to a position
Del: S52 chart presentation
Enter: Left click at cursor position

/: Darker screen colours
*: Brighter screen colours
Esc/Space: Acknowledge alarm

Ctrl+PrtScr: Screenshot
Ctrl+Alt+
Shift+T: Calibration test for monitor
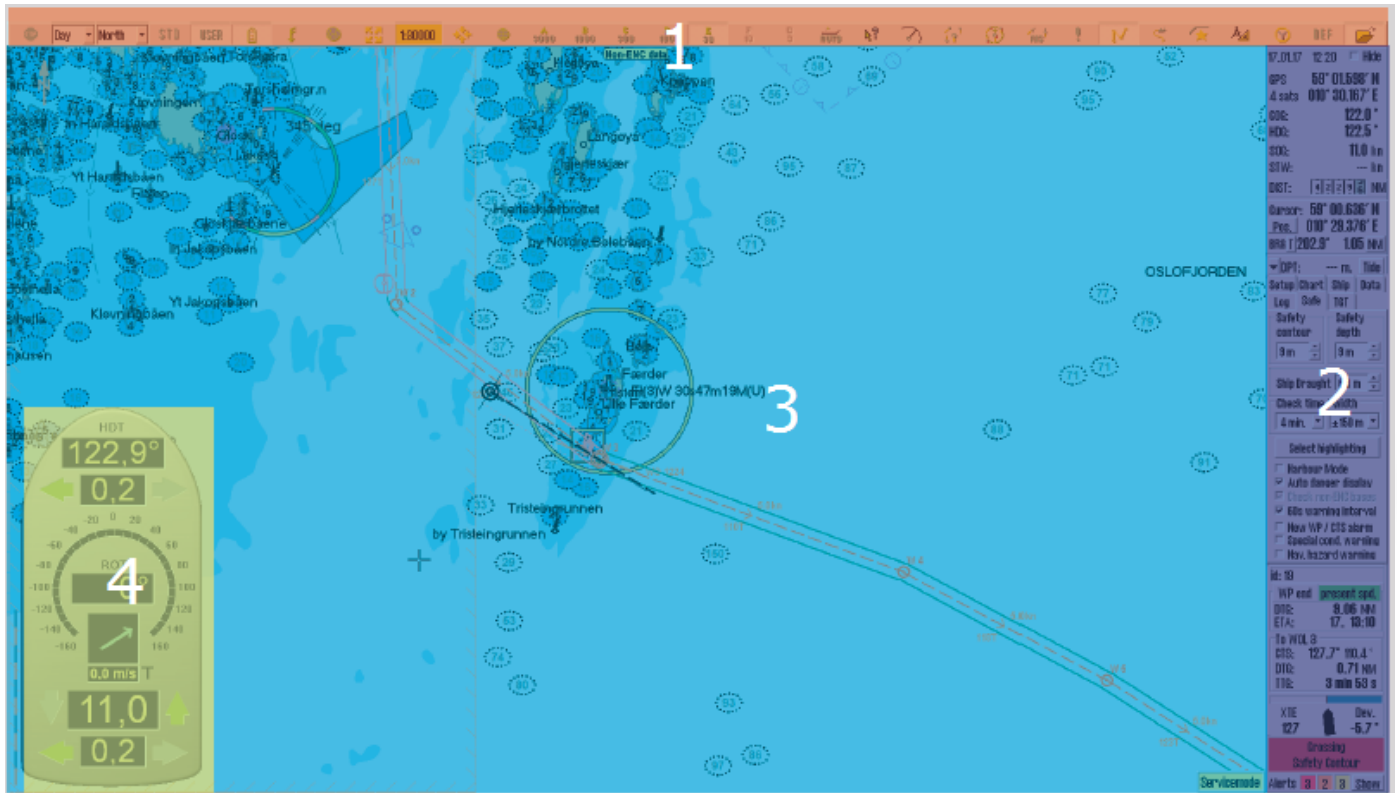
*optional

Optional peripherals

You can expand the functionality of TECDIS by using custom keyboard/keypads:
- TECDIS Keypad, a 21-digit fast access keypad custom made for TECDIS, can be flush mounted in the console or on the armrest for easy access to the most important features.
- Furuno RCU-018, an alternative keyboard/trackball solution for TECDIS 2138.

An overview of TECDIS

The TECDIS screen

The TECDIS screen consists of 4 main sections:

| 1 | The Main Toolbar | 2 | The Information Panel | 3 | The Chart Area | 4 | Task specific windows and tools |

Task-specific windows and tools/toolbars appear over the chart view, and are placed depending on their functionality. In general, toolbars are placed on the left side of the screen, while windows are placed on the bottom half of the chart view.

An overview of TECDIS

The main toolbar

At the top of the screen you find the main toolbar, which gives access to main system functions. This section contains a brief description of the different functions.

Stop TECDIS	Auto chart repositioning
Monitor colour palette	cursor Pick
Chart orientation	EBL/VRM Bearing
Left click to get S52 chart presentation Right click to remove extra information	Show ARPA targets
USER configured chart presentation	Show AIS targets
Conning and anchor watch	MOB symbol / event marker
Weather overlay	Route planner
Radar overlay	Past Track
Video switching	User-created symbols
Zoom in	Maritime calculations/LOP
Chart scale	NAVTEX
Zoom out	Settings menu
Show overview chart	Default user settings

Chart scales:

An overview of TECDIS

The information panel

1. **Date and time**
2. **Sensor data for navigation** (GPS, gyro, log and a trip counter that you can reset) Click on the different sensor labels to get information about the sensor integrity. If you click anywhere else, the text in this field will be enlarged for improved viewing.
3. **Cursor information** (cursor position, bearing and distance from ship to cursor)
   By pressing **Pos** you center the chart in the entered position.
   By pressing **BRG T** you can switch between true(T) and relative(R) bearing.
   By pressing **NM** you cycle between displaying units in NM or meters.
4. **Depth and Tide information** (expandable)
5. **Wind speed** (True or Relative, expandable)
6. **Drift** (Calculated based on COG, SOG, HDG and STW, expandable)
7. **Chart display for the anti grounding system**(always displays own vessel)
8. **Menus** (available from the menu button on the main toolbar, or by moving the cursor to the bottom edge of the anti grounding chart display)
9. **Voyage information and/or Autopilot information** (displayed during sailing of active routes)
10. **Alarms, warnings and notifications**
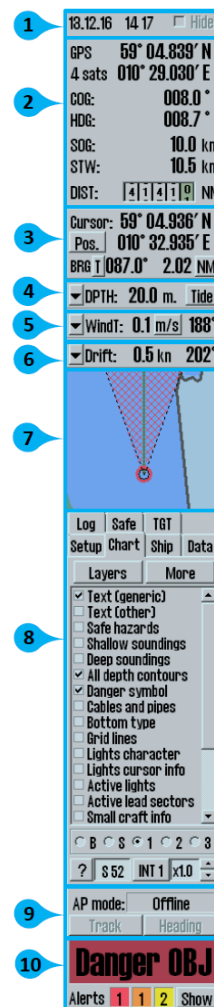
An overview of TECDIS

Own vessel position
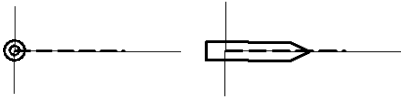
Own vessel position in the chart is presented with either a double circle or a vessel contour, at the position reported by your vessel's position sensor (typically GPS). The display will depend on the zoom level and settings in the **Ship** menu.

! *TIP: Use Auto in the main toolbar to center the chart view on your own position.*

Moving around in the charts

Panning the chart	Move the cursor to the edge of the chart view, and the cursor will change shape to a directional arrow. When you left click with the trackball, the chart will pan in the direction of the arrow.
Center the chart view on a position	To move a geographic position in the chart to the centre of the chart view, you move the cursor to that point and click the middle trackball button. You can also set chart center with the Position tool available in the Information Panel. Zooming in/out with the cursor also centers the chart view on the cursor position.
Automatic chart centering	TECDIS can automatically ensure that the chart is oriented to your own vessel. Click on the Auto button on the Main Toolbar to activate. Note that using the Zoom buttons on the Main Toolbar, will NOT turn off Auto. Locking Auto mode is done by right-clicking Auto.
Chart zooming (scale)	To change between different chart scales, or the magnification of the viewed chart, you can use the cursor or the zoom and chart scale buttons. Zoom in by left clicking in the chart, and zoom out by right-clicking. Alternatively you select the desired chart scale from the Main toolbar. You can also use the zoom in and zoom out buttons, and when you right click those buttons you will get access to over- and underscaling your charts as you zoom in/out.

An overview of TECDIS

Chart presentation

! As a user of TECDIS you are expected to have a good understanding of the principles of navigation and use of nautical charts. This guide will therefore focus on how you see your charts in TECDIS, not what individual chart symbols and graphics represent.

You can customize the display of charts in TECDIS to your liking, and always get back to a standardized chart display by clicking on the **STD** button on the main toolbar.
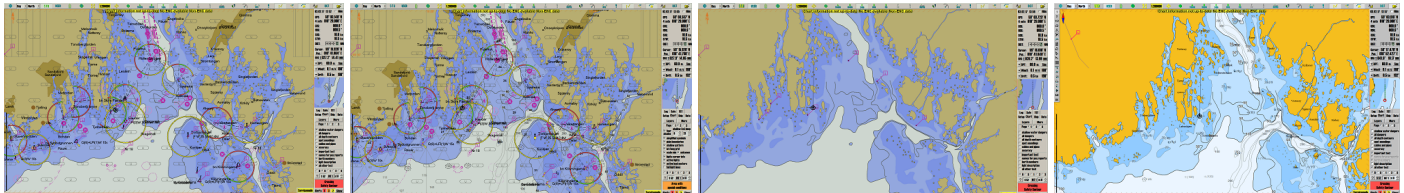
Standard display   More chart features added   Chart features removed   INT 1 display (not for navigation)

The ECDIS standard chart display is set by IMO, with certain colours, symbols and contents. TECDIS integrates this feature in the STD button in the following way;

Left Click on the STD button   The charts switch to the IMO-defined S52 presentation.

Right Click on the STD button   All extra windows, symbols, tracks, targets, supplementary layers and more are removed from the chart view. The chart view will now only display the chart, own vessel symbol and currently sailed route.

Customizing the chart presentation

You can customize the chart presentation in the Chart menu. Here you can set a general appearance with the shortcuts and special display options in the *three main panels*, or you can press the **More** button to access the *IHO viewing groups* directly, where you can customize the chart display in great detail.
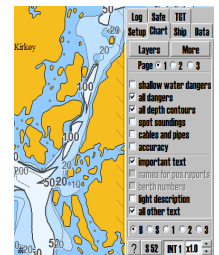
2 Keeping the charts updated

Keeping the chart databases updated is the navigators responsibility, to ensure safe sailing. Contact your chart provider for more information about the chart update services they can provide for you.

All chart databases can be updated in the **S63 Chart Loader**, available inside TECDIS and as a separate program.

C-Map SENC (ENC, ENC+ and Professional+) can also be updated in *C-Map chart update* (Read more about this option in the Reference Manual).

Updating charts with the S63 Chart Loader

In TECDIS you have access to 1-click chart updates. When charts have been loaded manually the first time, you can later just insert new chart media (Navstick, C-Map DVD, S63 base media), and the system will auto-detect if there are updates or new chart cells.
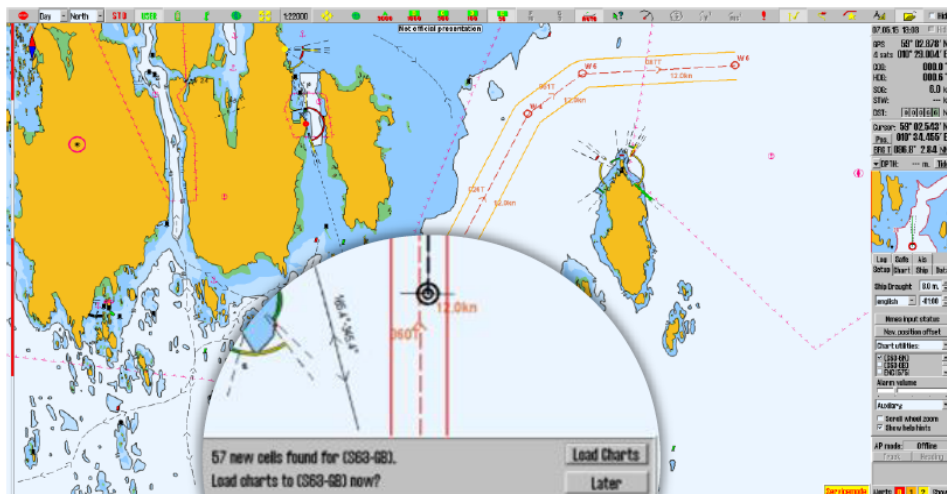
!   Chart licenses have to be entered manually. The exception is if you are using Navtor *Navstick   exchange sets* from either ChartCo or Nautisk.

Keeping the charts updated

Correcting charts manually

The SOLAS convention requires all charts to be updated for the planned voyage. Before you plan your voyage it is strongly recommended that both the automatic and manual chart correction functionality is used to keep the chart updated.

All manual chart corrections are drawn in the chart with <mark>orange markings</mark>.

The procedure for adding manual chart corrections is as follows;

1. Open the *Setup* menu, and select **Manual chart update** in the *Chart Utilities* dropdown

2. In the appearing window you perform all manual chart correction. *The window can also be displayed by using the cursor pick tool.*

3. Press the **Add New** button

4. Now a new field is opened, here you select what object you want to add. If the object is from Notice to Mariners, mark this checkbox. You can also search for object types here.

5. When you have selected the object type in the list, you can press **Continue**.

6. Now a new field opens, for entering positions. Left click in the chart to place positions, or enter with the keyboard.

7. Press the **Continue** button.

8. Now a last field is opened. Here you set different attributes to the correction.

9. Finish by pressing the **Save** button.

10. Register the name/initials of the navigator that has performed the correction.

Keeping the charts updated

Chart Licensing

There are several ways to administrate chart licenses:

Chart type	Supplier/base name	Tool
C-Map SENC	C-Map ENC+, ENC and Professional+	These use license keys that are administered in **TECDIS Setup**.
S63	Navtor, Nautisk Forlag, ChartCo and others	These use Cell Permits for licensing, administered in **S63 Chart Loader**. Navtor Navstick, Nautisk AVCS, and ChartCo AVCS are added automatically.
S57		These do not use any form of licensing.

View the chart licenses and their status

Chart licenses are viewed by going to the **Setup** menu → **Chart Utilities** dropdown list → **Check licenses**.

A new window appears, and displays a list of all chart licenses entered in the TECDIS system.

- Licenses with a green background are valid more than 14 days beyond today.
- Licenses with a yellow background will expire within the next 14 days.
- Licenses with a red background are expired.

Gulf of Mexico

Fl G 2.5s4M
Q Y 1s5.4m7M
Q G 1s4M
Q FI G 3s5.4M
Northwest Channel Fl 4s3.6m5M
Calda Bank
Fl G 4s4.8m
Bluefi
Calda Ch

Fl R 2.6s4.8m5M

Fl 6s4.8m5M
Fl G 4s4.2m5M
Middle Ground

Little Mullet Key
Big Mullet
Cott

Grande Channel

Archer Key
Mule Key
Wisteria Island
Tank Island

Lakes Passage
Lakes Passage
Barracouta Keys
Jon Ingram Key
Crawfish Key
Kingfish Shoals

Man Key
Boca Grande Key
Woman Key
Ballast Key

325 de

Key West Harbor, Naval Explosives Anchorage are

Straits of Florida
West Triangle
West Channel
Western He
Middle Ground
Parsonage Shoal

3 Creating and sailing routes

Creating routes

Route planning is a key activity that forms the base of any safe voyage. A route plan is a comprehensive, port to port guide, developed and utilized by the vessels navigators to

- find the best route
- identify potential dangers or issues along the voyage
- commit any decision with safety for the vessel and crew at its core
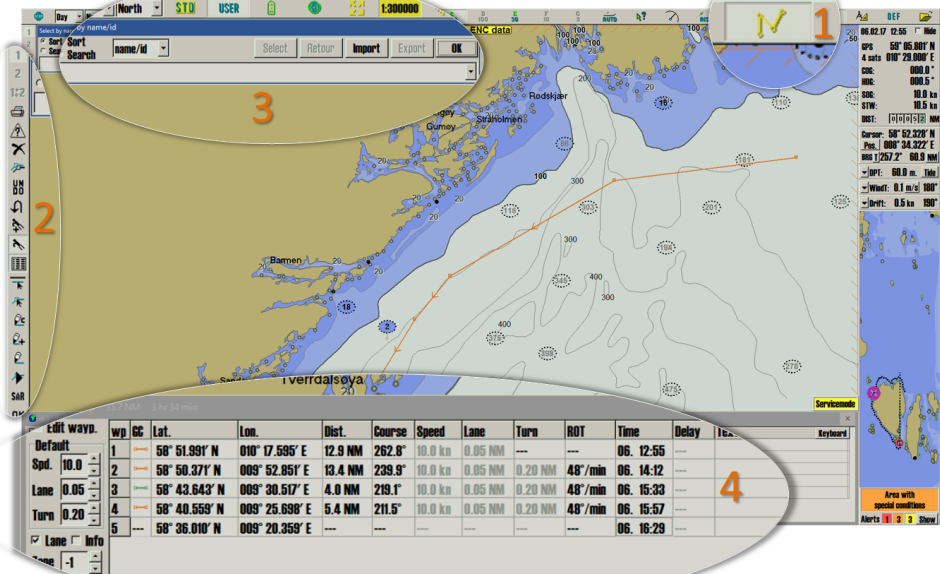
The route functions are:

1 The route tool button (to start)
2 The route toolbar
3 The route selection window

4 The voyage planner

Creating and sailing routes

Drawing a route directly in the chart

Press the **Make a new route** button in the Route Toolbar to start the process of creating a route.

1. The cursor is placed on the position in the charts where you want to place the first waypoint. Press the **left mouse button** to set the first waypoint.
2. This will start the voyage planner, and a new window will appear at the bottom of the display. In it you can enter the route name and several describing tags.
3. Continue drawing the route by moving the cursor to the desired location for the second waypoint, and press the **left mouse button** to place it. A line will appear between the two waypoints, showing the route leg.
4. Continue placing waypoints until you are satisfied with the route displayed in the chart.
5. Finish drawing the route by pressing the **right mouse button**, or by selecting **OK** in the route toolbar.
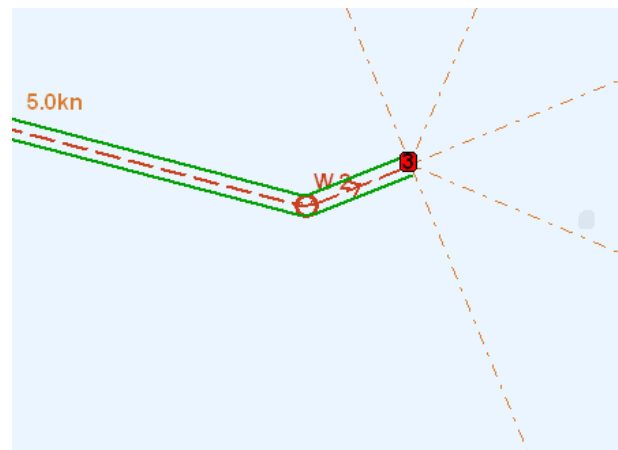
Smart route creation features:

- Sightlines at 0, ±45, 90 and 180 degrees from the bow are there to aid you in visual route creation.
- You can pan the chart while drawing a chart
- A route can contain up to 500 waypoints.
- The corridor width and turning radius is set in the voyage planner.
- It is not possible to activate a route with invalid turns *(where corridor and radius doesn't match)*.
- The last route edit operation that was saved can be undonewith the **UNDO** button.

Route check
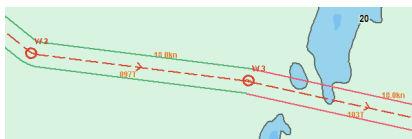
When the last waypoint in the route is set, the route will automatically be checked for dangers. The lines of the voyage corridor has different colours, displaying the route leg safety status.

Creating and sailing routes

Corridor colour	Route planning	Active route
Green	The route leg is safe and there are no warnings for this route leg/turn.	
Yellow	Chart objects with warnings are found in this route leg/turn.	Navigational hazards within the route corridor is outlined Areas with special conditions within the route corridor are outlined
Red	Danger objects are found in this route leg/turn.	Safety contour dangers within the route corridor are outlined
Grey	The safety check for this route leg has failed. Split the route leg and adjust waypoint placement.	

The route check should be performed with the **Route Danger** list open. This allows you to go through the dangers of the route systematically.

With the **First**, **Prev**, **Zoom to route leg**, **Next** and **Last** buttons you can rapidly asses the different dangers associated with a route leg.

When you select a danger from the list, the chart view will recenter around the intersection between the danger and the route leg
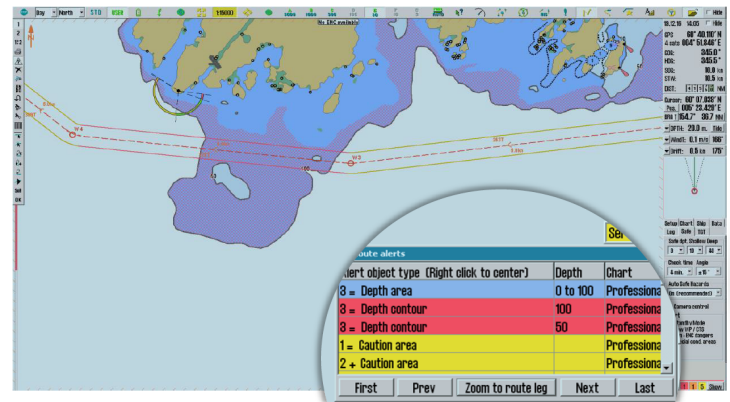
Activating the route

You can activate your route in several ways, both automatic and manual. This table provides an overview on the different ways. Select the one you like best:

Automatic activation when own ship is inside the route corridor	For this to be possible the **auto route activation** has to be selected in the **Safe** menu tab.
Manual activation when own ship is inside the route corridor	Press the **activate route** button on the route planner toolbar.
Automatic activation, with creating a route leg from the vessel position to the route	For this to be possible the **auto route activation** has to be selected in the **Safe** menu tab, and **Allow route activation entry lane** has to be selected in TECDIS *Setup*.
Manual activation, with creating a route leg from the vessel position to the route	For this to be possible **Allow route activation entry lane** has to be selected in TECDIS Setup. Press the **activate route** button on the route planner toolbar.

Creating and sailing routes

Navigation information

When a route is activated, you enter navigation mode, and a navigation window will appear in the bottom of the information panel.

1	Text field	Route name or next waypoint
2	WP end / WP X	Opens the ETA list where you see all ETA times, and you can select which waypoint you want ETA and DTG to be displayed for.
3	Planned speed / Present speed	Lets you switch between planned and present speed for ETA calculation.
4	DTG	Remaining distance (Distance To Go)
5	ETA	Estimated time of arrival
6	CTS	Course to steer by and course for next route leg
7	DTG	Remaining distance to the next route leg
8	TTG	Time to the next Wheel Over Point (Time To Go)
9	Position in the route leg corridor	The vessels position in the corridor is shown with red for port side, and green for the starboard side.
10	XTE	Indicates Cross track error for the current course, measured in the current unit for EBL/VRM.
11	Dev	Deviation from course

Calculation of voyage duration

There are two ways you can calculate ETA for the route:

Planned speed Planned speed uses the speed values listed in the route planner.

Present speed Present speed calculates ETA from the actual speed the vessel is sailing with when the calculation happens.

The exception is if a speed value listed in the route planner is locked by the navigator. Then the system will calculate the ETA based on a combination of current speed and planned speed.

The ETA window has several display modes:

- By **right clicking** on the **ETA** title you can cycle through displaying ETA, TTG and DTG
- By **left clicking** the **ETA** title you can cycle through ETA for current, UTC and planned time zones
- By **left clicking** on the **All** title you can cycle through displaying all waypoints, waypoints with text and waypoints with planned stops

Creating and sailing routes

Selecting routes

The route selection button opens the route organiser tool. This tool is primarily used to sort, search through and select routes. It is also used for export of CSV, TXT and LST files, and import of LST files. In addition all routes in the route organiser are displayed in the chart view while this window is open.

There are three ways to select routes:

1 Use the route dropdown list with sort activated.
The list can be sorted by different parameters such as *owner*, *to*, *from*, and *name/ID*. When you have found the desired route in the route list, slelect it and press
   a.   **OK** to start sailing.
   b.   **Return** to start sailing but in the opposite direction.

2 Use the route dropdown list with search activated.
A search field is available next to the sort/search selector. In it you write the search term and use the dropdown list next to it to set search parameters. The route list will fill up with search results as you type. When you have found the desired route, select it and press
   a.   **OK** to start sailing.
   b.   **Return** to start sailing but in the opposite direction.

3 Use the route selector tool directly in the charts. With the route organiser open, the cursor changes shape to a boat-hook and all available routes are shown in the charts. You can now find the desired route in the chart, and select it using the cursor.
   a.   **OK** to start sailing.
   b.   **Return** to start sailing but in the opposite direction.

Voyage planner

The Voyage planner button gives access to a voyage planner window with detailed information and settings for the selected route and all its waypoints. The window contains a table of the waypoints with customizable values.

Default values for **speed**, **corridor width** and **ROT** can be specified in the *Default* field in the waypoint list. These values are used for the entire route, except for waypoints where you have locked a **custom** value. Custom values are viewed in black.

!   Custom speed values should only be used for restricted waters, as they override current speed in ETA calculations.

Gulf of Mexico

Fl G 2.5s4M
Q Y 1s5.4m7M
Q G 1s4M
Q R G 3.5s4m4M
Northwest Channels 3.6m5M
Calda Bank
Fl G 4s4.8
Bluef
Calda C

Fl R 2.6s4.8m5M

Cottrell Key

Fl R 6s4.8m5M
Fl G 4s4.2m5M
Fle
Middle Ground

Little Mullet Key
Big Mullet Key

Grande Channel

Archer Key
Mule Key
Wisteria Island
Tank Island

Lakes Passage
Lakes Passage
Barracouta Keys
Ingram Key

Crawfish Key
Kingfish Shoals

Man Key

Boca Grande Key

Woman Key
Ballast Key

325 de

Key West Harbor, Naval Explosives Anchorage are

Straits of Florida

West Channel

West Triangle

Middle Ground

Western He

Parsonage Shoal

4 Antigrounding and alert system

TECDIS is equipped with an advanced alert system, that makes sure you do not misjudge a dangerous situation.

The system contains both general system performance alerts, as well as antigrounding alerts.

How alerts are displayed

Chart related alerts can be outlined in the chart by clicking on the alert in the list.

Most alerts and notifications are displayed in the bottom section of the **Information Panel**.

When alerts appear, they can be examined by clicking on the alert.

This opens the alert list.
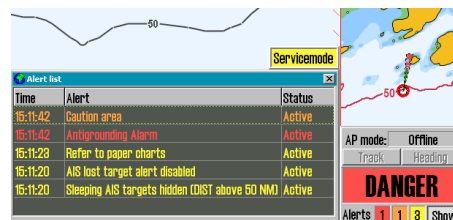
Antigrounding zone

When the vessel's speed over ground (SOG) is over 1.0 knots, the system will oversee a safety zone in front of the vessel and notify all the hazards objects and areas with special conditions. The width and extent of this security zone is set up in the *Safe* menu.

The safety zone is always displayed - heading up - in the antigrounding chart in the Information panel.

If any hazards are detected, the following actions are triggered:

- an anti grounding alarm starts
- the anti-grounding chart will highlight the dangerous chart objects within the safety zone
- the safety zone will be displayed in the main chart display
- if the main chart display has been repositioned away from the own vessel position, the chart center will be moved back to the own vessel position.
- if *Auto Safe Hazards* is set to "**Auto On**" or "**Auto On+Off**", then the *Safe Hazards* and *Shallow Soundings* options, in the *Chart* menu, are turned on at the first warning, if they were not selected already.
- Until the anti-grounding alarm has been examined, the alerted areas in the safety zone will also be marked in the main chart view.

Antigrounding and alert system

Alert list

The list of active warnings, alarms and notifications shows which notices that require confirmation from the navigator. Confirmation requires the navigator to click on the alert in the alert window or the alert list. If there aren't any active notices in need of confirmation, but an alarm is still active, this alarm will still be shown. If several confirmed alarms are active, the warning field will show the text *ALARMS*.

Alarms, warnings and notifications are presented in the following order and design:

	Warning field	Alarm list	Audible signal
Unconfirmed alarm	Background alternating between red and dark red, with static black text	Background alternating between red and dark red, with static black text	3 short beeps every 8 seconds
Confirmed alarm	Red background with black text	Red text	No
Unconfirmed warning	Background alternating between orange and dark orange, with static black text	Background alternating between orange and dark orange, with static black text	2 short beeps every 60 seconds (4,8 min can be set in Safe menu)
Confirmed warning	Orange background with black text Displayed for 30 seconds after confirmed	Orange text	No
Caution	Yellow background black text. Displayed for 30 seconds after it appears	Yellow text	No

Alert field texts

(cautions are only listed in the Reference Manual)

Alert	Priority	Cat.	Description (if needed)	Type
All heading sensors lost	Alarm	B	TECDIS has lost communication with all heading sensors. Track control active mode only.	TCS
All position sensors lost	Alarm	B	TECDIS has lost communication with all position sensors. Track control active mode only.	TCS
Anchor watch	Warning	A	The vessel turning radius exceeds the anchor watch zone. Escalates to an alarm after 120 seconds if not acknowledged.	ECDIS
Back-up Navigator alarm active	Warning	B	Back-up Navigator alarm active. Only for TECDIS configured with TCS.	ECDIS
Chart area with special conditions	Warning	A	The vessel is entering a new area where special conditions applies. Clicking on the alert in the alert list, the danger object is highlighted with red in the chart.	ECDIS
Course difference limit exceeded	Warning	B	Track control only.	TCS
Crossing safety contour	Alarm	A	Anti grounding danger detected. Clickit to open alert list.	ECDIS
Final waypoint passed	Warning	A	The vessel has passed the last WP in the active route. Optional.	ECDIS
Lost autopilot alert communication	Warning	B	TECDIS has lost communication with the autopilot. Track Control only.	TCS
Lost autopilot communication	Warning	B	TECDIS has lost communication with the autopilot. Track Control only.	TCS
Lost connection to BAM	Warning	B	TECDIS has lost communication with the BAM.	ECDIS

Antigrounding and alert system

|					
Lost monitor control and alert buzzer	Warning	B	TECDIS has lost serial communication with the monitor.		ECDIS
Lost sensor AIS	Warning	B	TECDIS is no longer receiving data from sensor for AIS		ECDIS
Lost sensor Heading 1	Warning	B	TECDIS is no longer receiving data from sensor for Heading 1, and the system cannot change to a valid alternative sensor		ECDIS
Lost sensor Heading 2	Warning	B	TECDIS is no longer receiving data from sensor for Heading 2, and the system cannot change to a valid alternative sensor		ECDIS
Lost sensor Position 1	Warning	B	TECDIS is no longer receiving data from sensor to Position 1.		ECDIS
Lost sensor Position 2	Warning	B	TECDIS is no longer receiving data from sensor to Position 2.		ECDIS
Lost sensor Water Speed	Warning	B	TECDIS is no longer receiving data from sensor for water speed.		ECDIS
Lost sensor Water Speed	Alarm	B	TECDIS is no longer receiving data from sensor for water speed. Track Control active mode only (active voyage).		TCS
Lost synchronization link for charts	Warning	B	The physical network connection to another TECDIS device does not work. Check the connection.		ECDIS
Low Speed	Warning	B	The vessel's speed is below the limits set in TECDIS Setup. *Track control only, requires NP5500 software revision 304 or newer.*		TCS
Mariners danger object	Alarm	A	Own /designated object with danger mark in the security zone.		ECDIS
Missing link to other ECDIS	Warning	B	Error in transferring active route between primary and secondary TECDIS.		ECDIS
Navigational Hazard	Warning	A	Anti grounding. Possible dangerous objects in the safety zone.		ECDIS
Pos sensor difference limit exceeded	Warning	B	The course deviation between the sensors Position 1 and Position 2 is greater than the limit in TECDIS Setup. Track Control active mode only (active voyage).		TCS
Route critical point	Warning	A	A critical point is approached on the route.		ECDIS
Sensor Error Pos.1 Wrong Datum	Warning	B	Sensor for Position 1 sends a different datum than WGS84. The corresponding warning was not acknowledged within 30s.		ECDIS
Sensor Error Pos.2 Wrong Datum	Warning	B	Sensor for Position 2 sends a different datum than WGS84. The corresponding warning was not acknowledged within 30s.		ECDIS
Sounder position err. Setup / Sounder	Warning	B			ECDIS
Switch to Heading Control or Manual	Warning	B	Track control only.		TCS
System watchdog is offline	Warning	B	Anti-gounding is switched off.		ECDIS
Target buffer full reduce range	Warning	A	TECDIS receives too many targets, reduce the AIS target display by adjusting the display and filtration settings in the TGT menu. As long as the total number of targets is below 500, all targets will be tracked even if not displayed. The total number of targets TECDIS can handle simultaneously is 2000, where 75% (1500) of the buffer when full will be reserved for visible targets. When target display settings are altered, the 75% of the buffer will be cleared for currently hidden targets and repopulated with fresh targets.		ECDIS
Track Control Stopped	Warning	A	Track control only. Escalates to alarm after 30 seconds if not ackknowledged.		TCS
Updating charts, antigrounding off	Warning	B	While the charts are updating, the database is unavailable, and therefore antigrounding is unavailable.		ECDIS
Vessel off track	Alarm	A	For this route voyage, the vessel has moved outside the route corridor.		ECDIS
Waypoint alert	Warning	A	Comes when approaching a new waypoint. This alert is optional.		ECDIS

5 Tools

This selection of tools will help you use TECDIS to the fullest.

Cursor Pick - Review objects in the chart

The **cursor pick** is a general tool in TECDIS, with multiple functions depending on which tool you use it together with.

Common for all use areas is that it gives information beyond what is usually displayed. When activated, you can left click anywhere in the chart, and a **pick report** will appear.
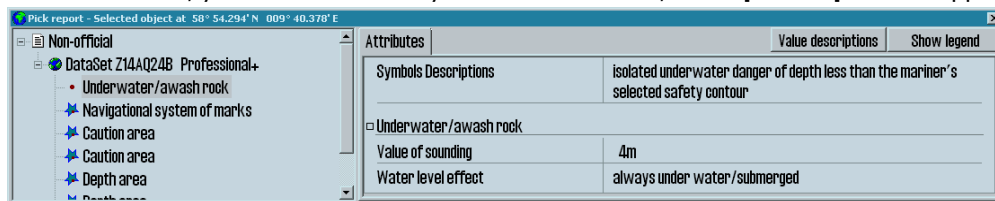
User created symbols

It is easy to insert your own symbols in TECDIS. You can insert **lines**, **areas** and **point symbols.** Apart from the MOB symbol(available on main toolbar), all user created symbols are accessible from the symbol tool.
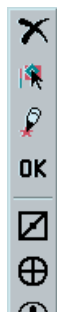
From the symbol window you can **edit**, **select** and **add** different objects (*symbols, lines and areas*) that will be displayed on the chart. It is also possible to filter previously entered objects on a time line and by colour.

Lines and areas are edited with a separate toolbar than point symbols, but they both function and look generally the same.

The main functions of the symbol toolbars are

- Delete symbol
- Change/move symbol
- Add new symbol

! When you click on the funtion button, the respective tool is activated. To exit the different tools, press the OK button on the toolbar.

You can also select between 17 different symbol shapes, as well as 3 different area types.

Tools

EBL/VRM - bearing and distance tool

The bearing tool on the main toolbar displays CPA/TCPA or ETA information for the bearing point. You switch between CPA/TCPA and ETA by clicking on the information display. When the bearing is anchored in the vessel it will follow the vessel movements dynamically.

Left click to activate the EBL/VRM tool **Right click** to open the Bearing list

Bearing and range information is displayed in the cursor info panel, when the bearing tool is active.

| Bearing and distance	Enlarged view of bearing and distance	Configurable bearing and distance
EBL T 039.1° 6.86 NM	EBL T VRM 053.8° 8.17 NM	EBL T VRM 000.0° 1.00 NM

The three EBL/VRM panels share the same location, and you toggle between them by *clicking on the panel itself*.

AIS

When pressing the AIS button on the main toolbar you get access to displaying AIS targets in the chart view, expanded vessel information, and a list of all vessels equipped with AIS within range.
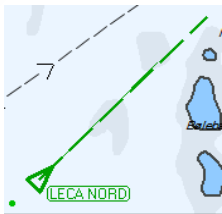
Display of *AIS targets*
Activated by left clicking the **AIS** button in the main toolbar.
Active AIS targets are presented in the chart view as green triangles, point in their heading direction and have past track displayed, along with heading and course vector.

The *AIS target list*
This list will appear when you right click the **AIS** button.

Detailed AIS information from other vessels
An AIS target is **selected** by left clicking it, and a window will appear, showing detailed information about the target, in the upper left corner of the chart view.

Detailed AIS information from own vessel
Access to own vessel AIS information is gained by clicking on your own vessel in the chart view. This brings up the window for *Own Ship AIS data*.

AIS direct messaging to selected vessel
Access by pressing the **Message** button in the AIS window for the vessel

### AIS broadcast to all vessels within range
Access this by pressing the **Message** button in your own ship AIS window.

Tools

NAVTEX

When you press the NAVTEX button, the Navtex window will appear. MSI symbols will also appear in the chart, within the Navtex range.

The Navtex window consists of a message filter and a list of received messages, with identification values such as message code, time, frequency, type and a message excerpt.

The list changes dynamically to reflect the settings in the message filter. Messages are displayed when you press the entry for that message in the NAVTEX window.

Radar and Arpa

You can connect up to two Furuno radars (EC-100/FCR 2xx7 or EC-3000/FCR 2xx9) simulatenously to each TECDIS.

All tracked radar targets are shown as green rings with course vectors. Sleeping radar targets are shown without the green tracking ring and vector.
Radar targets are displayed as AIS targets by default if they share MMSI number.
The target ID is displayed in the chart when you hover over it, with a prefix of either 1000/3000(radar 1) or 2000/4000 (Radar 2).

By clicking on a radar-tracked target, a detailed *Target information window* will be displayed. In addition to giving you expanded information on the target, you can activate the target and activate CPA for it.
The behaviour of the radar targets is affected by the settings in the TGT(target) menu tab.

Mini-Conning and Anchor watch

By left-clicking the **Conning Display** button in the main toolbar a *mini conning display* is shown.
The feature gives excellent viewing of movement, course and wind information that is essential to manoeuvring when mooring.

By right-clicking the **Conning Display** button in the main toolbar an anchor watch conning display is shown.
The anchor watch displays an anchor zone, the anchor drag, heading in relation to the anchor point and wind information.

Conning   Anchor watch

6

Settings

By clicking the **Settings menu** button on the *main toolbar*, a collection of menu tabs are displayed in the lower part of the information window. Only one is shown at a time, and the menu tabs are selected by clicking their heading.

These menus contain all settings for normal operation of TECDIS.
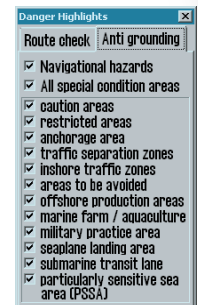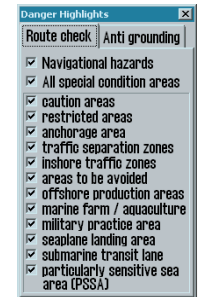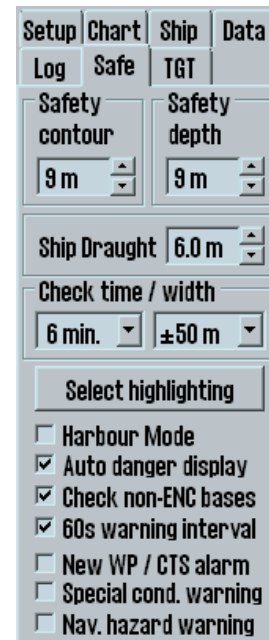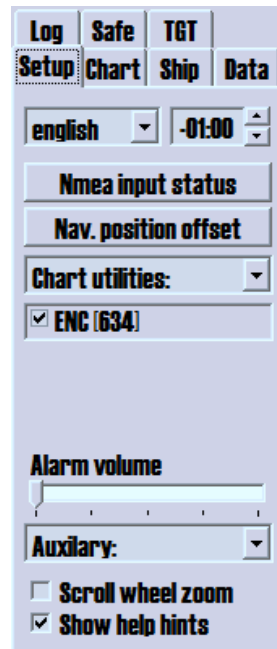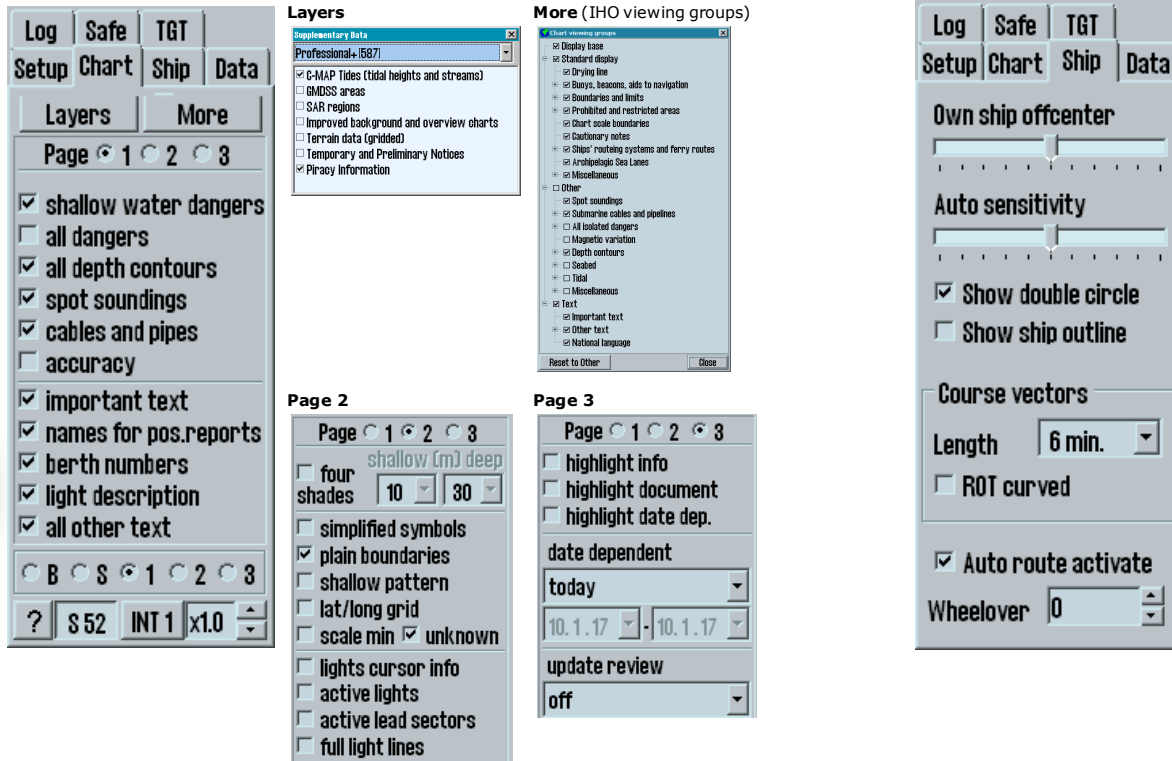

The Setup Menu

In this menu general settings such as language, timezone and function button assignment are handled. The Setup menu is also the main hub for Chart Utilities.

(Chart presentation is administrated in the **Chart menu**)

The Safe Menu

In this menu all safety settings are handled. The **Select highlighting** button acesses a control panel for all danger highlights in the chart display.

Settings

Layers

More (IHO viewing groups)

Page 2

Page 3

The Chart Menu

In this menu general settings such as language, timezone and function button assignment are handled. The Setup menu is also the main hub for Chart Utilities.

(Only chart presentation is administrated in the Chart menu)

The Ship Menu

In this menu all safety settings are handled. the Select highlighting button acesses a control panel for all danger highlights in the chart display.

More advanced system settings are available in the separate TECDIS Setup program, but these must only be changed by qualified service technicians.

Settings

The TGT (Target) Menu

In this menu all general target settings are configured, for both AIS and Radar targets.

Some additional settings are controlled in the target window available for each individual target.

The Data Menu

This menu handles all manual data transfer between the TECDIS and other TECDIS/TELchart ECS units, and to/from file for backup/out of ship transfer.

The Log Menu

This menu is home to the logging functions of TECDIS. TECDIS stores data for position, course and speed of own vessel and ARPA/AIS targets, every minute.

Note that **Replay voyage** is only available when own vessel speed is below 1 knot.

To see own vessel tracks, use the Track function on the main toolbar.

7 Troubleshooting

Experienced issue	Cause	Solution
A function does not work as intended/described.	Update to the latest version of TECDIS, available from www.telko.no. The issue you are experiencing may have been fixed since last update.	
TECDIS is unresponsive.	TECDIS has stopped working temporarily due to heavy tasks. This is indicated by the colon in the main clock in TECDIS; it stops flashing when TECDIS is unresponsive.	Wait for any other error messages. If none appear, the issue can be ignored. Alternatively, contact support@telko.no.
	The chart engine has stopped working. A counter will appear.	
I can't activate the route.	Route activation alternatives are not set up correctly.	For more information, see page 21.
Routes are not transferred correctly from one TECDIS to the other.	Your route database might be corrupted.	Contact us at support@telko.no for further instructions.
I get an error message when I try to save the route.		
I don't have access to the Replay functionality.	The replay functionality requires that the vessel is not moving. The vessel speed has to be lower than 0.5 knots.	
I need to know what TECDIS software version and/or license number is.	The TECDIS software version number and license number/eToken ID is available in the Legend. Press F4 on the keyboard or go to Chart menu -> **?** button.	
Tides are not displayed.	Tides are not switched on or the chart database with the tide table is inactivated or deleted.	Verify that C-Map P+, ENC+ or CAES is displayed (Setup menu), and that C-Map Tides is turned on (Chart menu -> Layers).
I cannot connect to chart update servers (C-Map).	Internet is not connected.	Use the dedicated internet switch.
	Verify access to datacenter.c-map.no	Connection OK = DNS related. Contact your IT support.
	Verify access to http://80.239.21.103	
	Try another connection method. Try updating through email.	
	Make sure your chart licenses are valid (Setup menu -> Chart Utilities)	
SSE error messages appear when updating charts	There is an issue in the chart compiler for S63 charts.	Read the S63 chart loading section in Appendix D of TECDIS Reference Manual 4.00 or newer.

8

FAQ

How and where can I get additional support?

Furuno Norway and their dealer network are responsible for general support. We here at Telko are specialized in production and development of TECDIS and TELchart ECS, and are happy to assist Furuno and you with the more technical questions.

If you need support urgently contact Furuno Norway **24/7** on phone **+47 71 40 35 35**

You can email them on service@furuno.no, or find their dealer list on www.furuno.no

My TECDIS certificate expired, how can I get a new one?

The MED-B certificate enclosed with all TECDISes are production certificates, and are only required to be vallid until the TECDIS system is installed on the bridge. You need to keep your original certificate.

Since the release of TECDIS 4.8.3, you also need to have a certificate that mentions that software version (certificate issued in 2017 or newer) in addition to the original certificate. A certificate is always enclosed in the upgrade package for TECDIS 4.8.3.

If your TECDIS hardware unit is not mentioned in the new certificate, please contact Furuno Norway for further assistance.

If you have misplaced your certificate, or need to download a newer one, you can do that on telko.no/support/TECDIS.

Where can I get TECDIS specific training?

Type-specific training for TECDIS is offered by several training facilities. Furuno Norway coordinates and approve all training facilities for TECDIS. Please contact them on furuno@furuno.no for more information on the best option for you.

Where can I get support for chart related issues?

Chart related issues can happen for various reasons.

The cause can be found in the chart data provided by Hydrograpic organisations(HO), the chart media provided by the chart providers, or in the chart engine in TECDIS, provided by C-Map and implemented by us at Telko.

The best place to get initial support for chart related issues, is from your chart provider.
If you are unsure of your chart provider, here are some helpful identification codes and their respective HO:
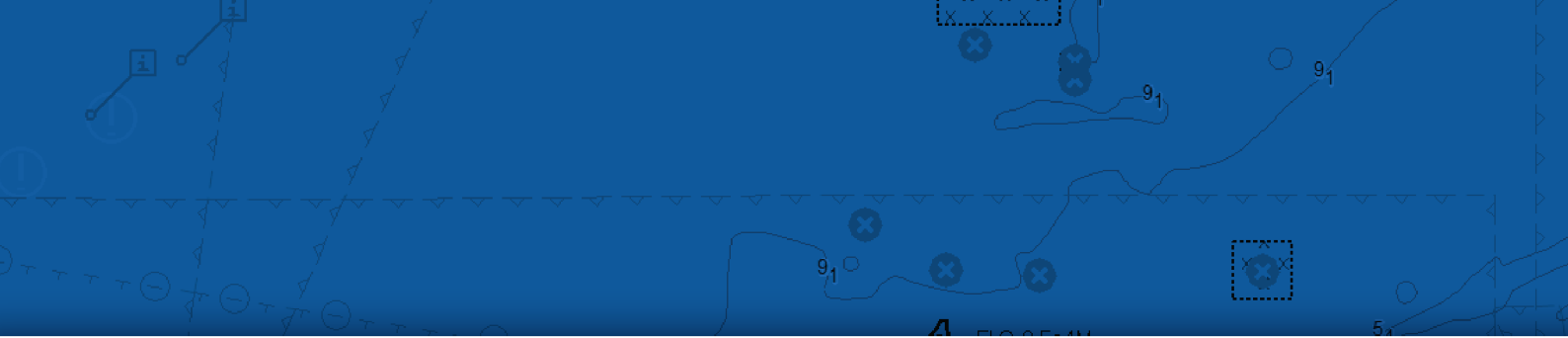
  [S63-GB] = UKHO/Admiralty   **[S63-6N]** = Primar   **[ENC][ENC+][CAES]** = C-Map

Notes

Notes

TECDIS is designed in Norway by Telko AS
and distributed worldwide through Furuno Norway

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