SWISS RADAR

PROFESSIONAL
NAVIGATION.

Operating Instruction

Version 2.2

PRECISION
NAVIGATOR //

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CH-6331 Hünenberg

WARNING !

Do not open the equipment.
Only qualified personnel should work inside the equipment.
Turn off the radar power switch before servicing the antenna unit and it must be ensure that no one turn it on while the antenna unit is being serviced.

Wear a safety belt and hard hat when working on antenna unit.

Before turning on the radar, make sure that there is no one near the antenna unit. Serious injury may result if a rotating antenna strikes someone standing nearby

Do not disassemble or modify the equipment.

Do not place liquid-filled containers on the top of the equipment.

Turn off the power immediately if water leaks into the equipment or the equipment is emitting smoke or fire

CAUTION !

Use the proper fuse. Use of a wrong fuse can result in fire or permanent equipment damage.

Radio Frequency Radiation Hazard. The radar antenna emits electromagnetic radio frequency energy which can be harmful, particularly to your eyes. Never look directly into the antenna aperture from a close distance while the antenna is standing and the transmitter is on.

Concession !

To use this equipment it's required to hold a radio transmission license

CE

Declaration of Conformity

We JFS Electronic Sturtzel + Co. AG
(Manufacturer)

Rothusstrasse 9, 6331 Hünenberg, Switzerland
(Address)

declare under our own responsibility that the product

SWISS RADAR
Type: Precision Navigator II
Inland waterway radar with ECDIS functionality
(Model name, additional characteristics)

are in conformity with the essential requirements as described in the Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).

According to the
Regulation concerning the Minimum Requirements and Test Condition for Navigational Radars in the Inland Shipping, including the requirements of EN 302 194 Parts -1 and -2
of the EU directive 2006/87/EG and the requirements of the Inland ECDIS Standard Ed. 2.0.
(Standards and documents)

Signed:

Peter Mühlherr

Vice President

14. March 2011, Hünenberg

JFS Electronic Sturtzel + Co. AG

FEDERAL WATERWAYS ADMINISTRATION

Traffic Technologies Centre
Am Berg 3
D-56070 Koblenz

WSV.de
Wasser- und Schifffahrtsverwaltung des Bundes

Admission Certificate

No. e-01-018

According to the

Regulations concerning the Minimum Requirements and Test Conditions for Navigational Radars in the Inland Shipping, including the requirements of EN 302 194 Parts -1 and -2

of the EU directive 2006/87/EG
and the requirements of the

Inland ECDIS Standard Ed. 2.0

the river radar equipment

SWISS RADAR Precision Navigator II

manufactured by

JFS Electronic, Rothusstrasse 9, CH-6331 Hünenberg

consisting of

Antenna AR 6 (6 ft) or AR 7 (7 ft) or AR 9 (9 ft)
Antenna unit PN II
Computer unit PN II
Monitor PN II,
Control unit PN II
GPS Compass VECTOR G2 or any other IMO certificated THD compass

will be admitted as navigational radar for the use on inland waterways.

The admission will be granted to

JFS Electronic, Rothusstrasse 9, CH-6331 Hünenberg

The essential features of the radar equipment are described in the conformity test report TP 01-2011 dated with 02-02-2011 which is part of this Admission. The owner of this Admission has to announce any modification of the equipment to the signer.

Federal Waterways Administration
Traffic Technologies Centre

Koblenz, 17-12-2014

by Order

(Walterfang)

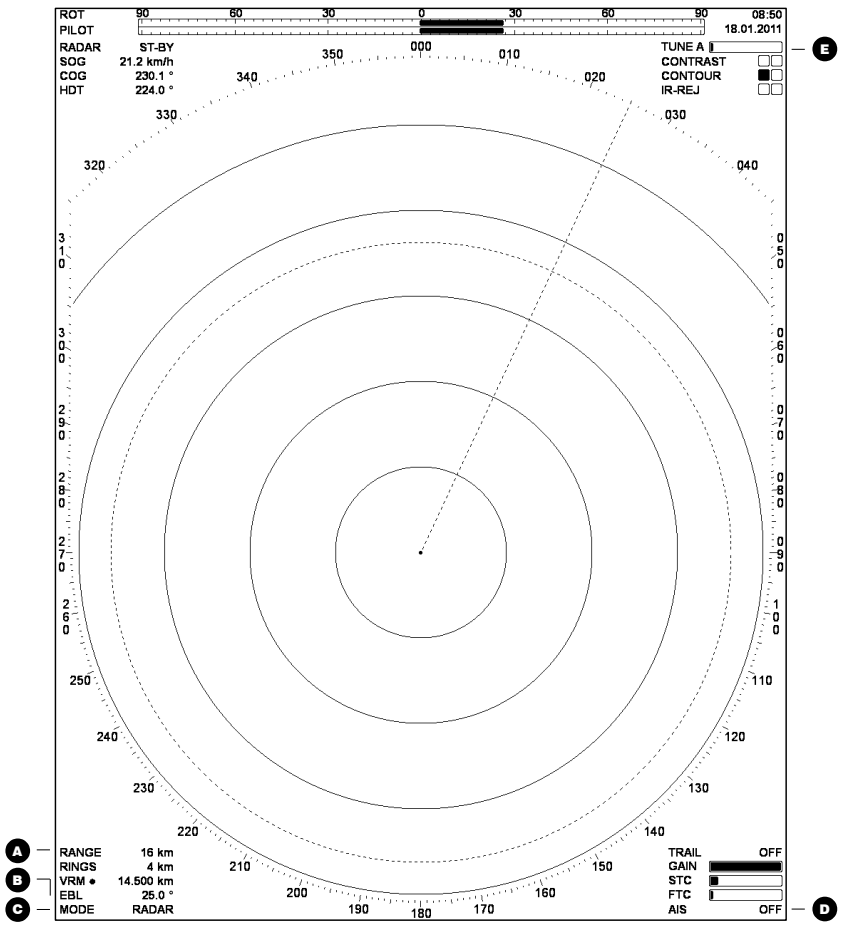
Fachstelle der WSV für Verkehrstechnik Koblenz

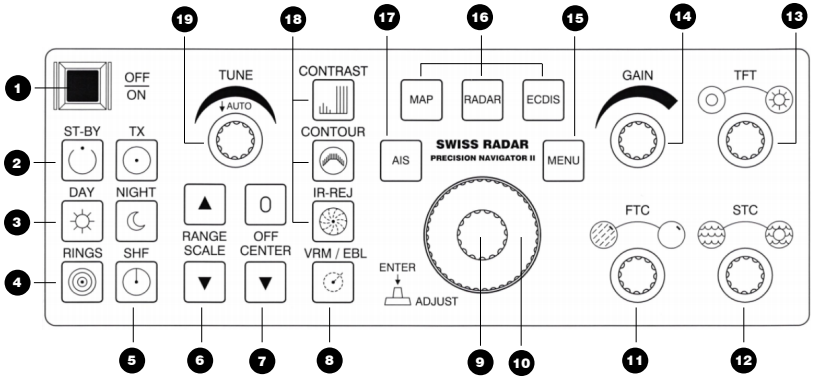
Admission certificates are valid only with official stamp and sign. They may be distributed unmodified only.

PRECISION NAVIGATOR

Short operating instructions

SWISS RADAR





MAIN FUNCTIONS

Starting up the device

The main switch 1 is located on the control unit. Press and hold the main switch for one second to switch it on. The deivice is now in RADAR mode in stand-by (ST-BY). Press and hold the main switch for two seconds to switch it off.

Modes of operation

This device disposes a RADAR-, MAP- and ECDIS- mode. Shifting between the modes is achieved by pushing the respective key 16 .
Map- mode MAP is only available in ST-BY.
The current mode MODE C is displayed on the screen.

Malfunction informations and reports are displayed at the same position C .Colour mapping is applicable as follows:

Red Alarm (critical)
Orange Warning (urgent)
Yellow Report (for your information)

Send (ST-BY / TX)

With keys TX / ST-BY 2 , the transmitter and antenna motor is switched on and off.

Tuning of receiver

Pressing the TUNE- rotary knob 19 shifts between automatic and manual tuning. Notice TUNE A (automatic) or TUNE M (manual) at the tune display E on the screen. Using the basic setting, automatic tuning is activated.

Gain and analog filters

For adjustment of gain, use the GAIN- rotary knob 14 .

The STC- rotary knob 12 is used for adjustment of the fast time constant (wave anti- clutter). STC mainly affects close range.

With the FTC- rotary knob 11 , the FTC- filter (fast time constant, rain anti- clutter) is activated and adjusted. This filter separates widespread clutters of echoes. Modifications affect the whole range.

Digital filters

The contrast filter CONTRAST 18 reduces interfering noise components on the radar picture.

The contour filter CONTOUR 18 shows the radar picture in a chart-like display and reduces interfering noise components.

The interference rejection IR-REJ 18 serves the reduction of external interferences through other radar devices.

Screen adjustments

The TFT- rotary knob 13 controls the brilliance of the screen and keyboard. If the SHF- button 5 is pressed simultaneously, the brilliance of the keyboard only is adjusted.

There are 2 x 5 colour variations at your disposal. To select, use the buttons DAY / NIGHT 3 .

By using the OFF-CENTER- key 7 , the radar picture can be decentred by up to 5 ranges.

Range selection

By pressing the two arrow-keys RANGE SCALE 6 , the favoured range is adjusted. The current range RANGE A is displayed on the screen.

Measure and reference lines

For the usage of the variable range marker (VRM) and the electronic bearing line (EBL), the menu must be faded out.
By pushing the ENTER- button 9 repeatedly, VRM / EBL is activated alternately. The dot on the display B marks the measuring function which can be controlled with the ADJUST- rotary knob 10 . To display or fade out the active measurement, press the VRM / EBL key 8 .

The RINGS- key 4 controls the brilliance of the fixed range markers.

By using the SHF- key 5 , the heading line is faded out.

AIS

By using the AIS- key 17 , the AIS- objects on the screen are displayed or faded out.

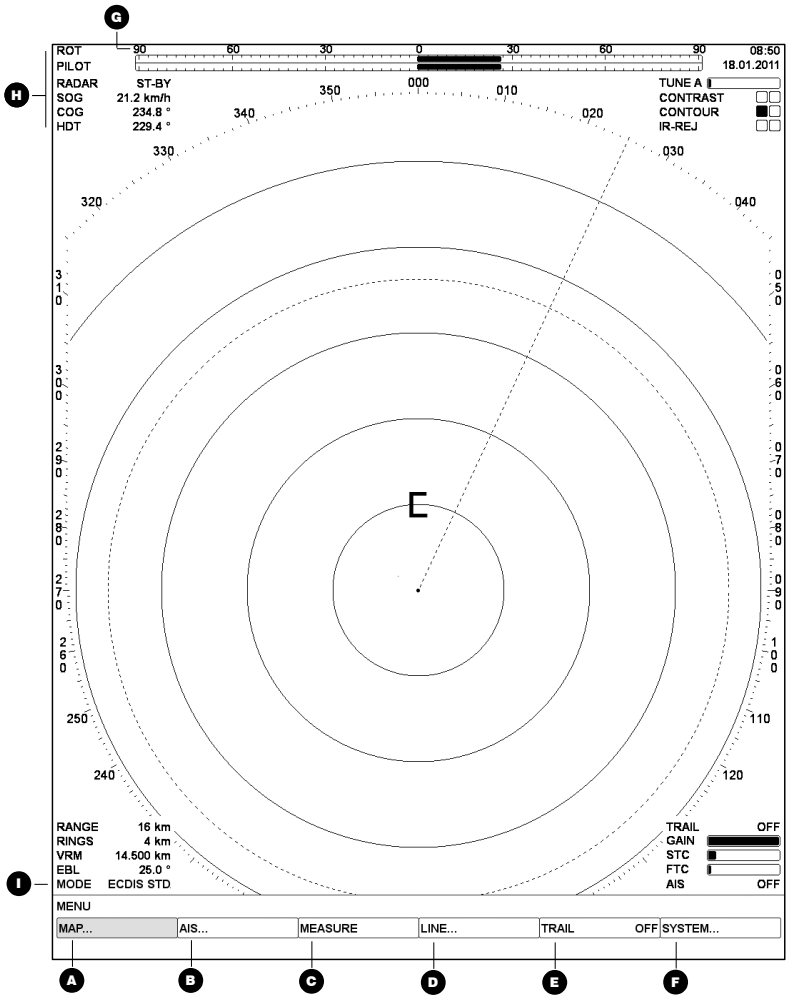
Menu control

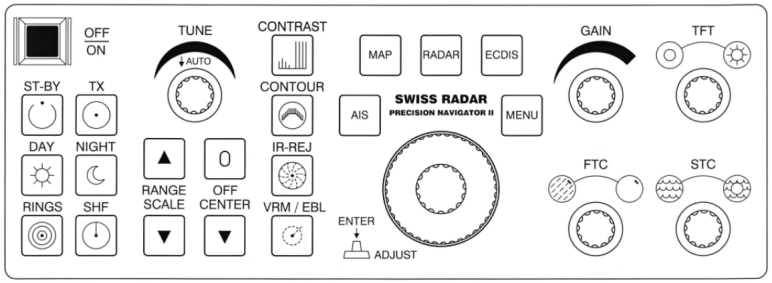
The MENU- key 15 displays the menu. By using the ADJUST- rotary knob 10 , the favoured menu item is selected and values are altered. By pushing the ENTER- button 9 , submenus are selected and alterations are stored. To exit without storage, press the MENU- key 15 .

PRECISION NAVIGATOR

Short operating instructions

SWISS RADAR





MENU FUNCTIONS

Measuring functions and lines

To measure the distance between two spots on the display, use MEASURE C.

LINE D /SHAPE the display of the own ship contour can be edited.

Under LINE D /NAV-LINE, navigation lines running parallel to the course line or additional measuring rings / bearing lines can be displayed. Under LINE D /POS PREDICT the prediction lines can be activated.

LINE E /TRAIL creates a luminescent trail behind all moving targets.

Screenshot

In the menu under PHOTO F, screenshots can be saved, displayed and exported. A screenshot can also be saved with the "Print" key on the alphanumeric keyboard.

System settings

To adjust the rate of turn indicator scale I or display range J, select SYSTEM /NAV CONFIG G.

If several antenna positions are configured, the current configuration can be selected under SYSTEM G /SHIP CONFIG.

In the menu under SYSTEM G /DEFAULT SET you can determine whether the device keeps the last settings when restarted or starts with basic settings.

AIS

AIS – Display options

The function MIN DIST enables to fade out AIS- objects, close to the own vessel. Therefore, select B AIS /MIN DIST within the menu, and enter the desired value of minimal distance.

Through AIS B /LABEL in the menu, the labels on AIS- objects can be turned on and off.

AIS – List of objects

For a display of all received AIS-objects, select AIS B /TARGET LIST within the menu. The list is assorted ascending, according to the objects' values of distance. By turning the ADJUST- rotary knob, objects can be selected. A selected object within the indicating range is marked with brackets. For further details on the selected object, press the ENTER-button.

View own AIS data

Own AIS- data can be consulted under AIS B /OWN SHIP DATA.

Edit own AIS data

In the menu under AIS B /VOYAGE and AIS B /INLAND VOYAGE the own AIS data can be edited.
To reset the settings select DEFAULT.

AIS - Messages

To send or display AIS messages, select the appropriate menu item under AIS B /MESSAGE.

CHART

Chart – Display options

Information density of the chart can be edited under MAP A /INF DENSITY. There are three levels of detail at your disposal:

BASE Minimalistic chart
STD Standard chart
ALL Display of all information

The selected choice is displayed on the screen under MODE I.

Under MAP A /TEXT, text informations can be faded out.

The colour schemes for day and night can be edited under MAP A /DAY respectively NIGHT.
The brilliance of the chart can be adjusted under MAP A /BRILLANCE.

Display object information

With the function PICK REPORT, detailed information for the current cursor position can be displayed. Select MAP A /PICK REPORT within the menu, and navigate to the desired spot on the chart, using the double rotary knob. Using the ENTER- button, the scroll function can be activated and deactivated.

Display VHF radio channels

Under MAP A /VHF REPORT the VHF radio channels relevant for the current position are displayed

Goto

With the GOTO function you can jump directly to a desired map position (coordinates or river kilometre). In MAP mode, select the MAP A /GOTO menu.

AIS...	**TARGET LIST**		List of all received AIS objects
Only available with connected AIS transponder	**VOYAGE...**	**...**	Adjust own ship AIS data: Voyage data
	INL. VOYAGE...	**...**	Adjust own ship AIS data: Vessel & Crew data
	MESSAGE...	**...**	Write, send and recive AIS messges
	RTA		Required times of arrival (lock management)
	OSD REPORT		Show own AIS ship data
	SETTING...	**AIS ON**	Show / hide AIS objects
		MIN DIST OFF	Hiding of AIS objects near your own ship
		LABEL ON	Show / hide labelling of the AIS objects
		NAME ON	Show / hide name of AIS objects
		SOG ON	Show / hide speed of AIS objects
		ENI ON	Show / hide the European Vessel Identifications Number
MEASURE			Measurement function for distance and speed measurement
LINE...	**SHAPE...**	**BRILLIANCE**	Select brightness of the own ship outline
		ENABLE	Show / Hide own ship outline
		ADD BOW	Enlarge ship outline, bow
		ADD STERN	Enlarge ship outline, stern
		ADD PORT	Enlarge ship outline, backboard
		ADD STAR	Enlarge ship outline, starboard
		DEFAULT	Reset own ship outline
	NAV-LINE...	**DIST L**	Set the backboard side navigation line distance
		VISIBLE L	Show / hide the backboard navigation line
		DIST R	Set the starboard side navigation line distance
		VISIBLE R	Show / hide the starboard navigation line
	EBL...	**EBL 2 / 3**	Set beareing line 2 / 3
		VISIBLE 2 / 3	Show / hide bearing line 2 / 3
	VRM...	**VRM 2 / 3**	Set variable range marker 2 / 3
		VISIBLE 2 / 3	Show / hide variable range marker 2 / 3
	POS PREDICT...	**TIME 60s**	Position prediction, prediction period, switched off when OFF
		DAMP 5	Position prediction, damping value
	FERRY		Ferry option settings (optionally available)
PHOTO...	**SHOT**		Save screen shot (like the PRINT key on the keyboard)
	SHOW		Show screenshots
	EXPORT		Export all screenshots to USB stick
	DELETE ALL		Delete all screenshots
VIDEO...	**SHOW**		Show recorded videos (blackbox recording)
Only available with Blackbox Recording option	**QLTY**		Set the image quality for exporting the recordings
	EXPORT		Export video to USB stick
	ARCHIVE...	**CREATE**	Archive video
		SHOW	Show archived videos
		EXPORT	Export archived video to USB stick
		DELETE	Delete archived recording
		DELETE ALL	Delete all archived recordings

DISPLAY...	**DESKTOP 1**	**OFF-CENTER X/Y**	Select horizontal and vertical decentration for current desktop
	Menu item only available in MAP mode	**RINGS**	Set the brightness of the distance measuring rings for current desktop
		ADD VALUE	Configuration of the current desktop layout: Add value
		ADD LIST	Configuration of the current desktop layout: Add table
		ADD WIDGET	Configuration of the current desktop layout: Add window
	OFF-CENTER	Menu items only in RADAR and ECDIS MODE available	Vertical decentration of the radar image by up to 5 steps
	RINGS		Set brightness of the fixed distance measuring rings
	TRAIL		Set level of trail
	COLOR DAY		Choice between day and night colour scheme
	DAY **NIGHT**		Set day / night colour scheme
SYSTEM...	**ALARM REPORT..**	**CURRENT**	Show current alarms or warnings
		ACK	Acknowledge current alarms or warnings
		HISTORY	Show list of past alarms or warnings
		CLEAR HISTORY	Delete the list of past alarms or warnings
	SYSTEM REPORT		Show serial number, configuration and software version of the device
	NAV-CONFIG...	**ROT**	Select rate of turn indicator range
		FIELD 1 / 2 / 3	Adjust navigation display (upper, middle and lower display window)
	TIME...	**SOURCE**	Set time base (system clock RTC / GPS / AIS)
		ZONE	Set time zone
		SET	Adjust system clock RTC
	USER...	**LOAD**	Load user settings
		SAVE	Save user settings
		DELETE	Delete user settings
	PTR SPEED		Setting the mouse pointer acceleration
	SHIP CONFIG		Choose configuration when using different antenna positions
	DEFAULT SET		Restart device with default settings / last settings
	SERVICE		Password-protected service menu
MAP...	**VHF STATION**		Show VHF radio channels of the current position
Only available with ECDIS Option. The menu items only appear in MAP or ECIDS mode.	**PICK REPORT**		View detailed chart information
	GOTO...	**KM**	Jump to a map position, using river kilometers
		GEO POS	Jump to a map position, using WGS84 coordinates
	PRIVAT DATA...	**INFO**	List of all self-drawn card entries
		ENABLE YES	Show / hide all self-drawn card entries
		VISIBLE	Show / hide selected self-drawn card entries
		NEW	Draw new card entries
		DELETE	Delete self-drawn card entries
		DELETE ALL	Delete all self-drawn card entries
	CHART ADMIN...	**INSTALLED CELL**	Show list of installed chart cells
		IMPORT	Chart import from USB stick (see manual!)
		RESTORE	Restore last status before import or deletion
		DELETE CELL	Delete selected chart cells
		DELETE ALL	Delete all chart cells

MAP...	SETTING...	DESKTOP 1	Configure current desktop
		MAP ON	Show / hide charts
		INF DENSITY	Set the information density for the chart on the current desktop
		TEXT ON	Show text information of the chart on the current desktop
		ORIENT	Chart orientation: NORTH (north oriented) / COURSE (compass course)
		MOVE	Chart section: LOCK (current position) / FREE (freely movable)
		TEXT SIZE	Adjust text size
		DAY NIGHT	Select day and night colour scheme of the map
		DEPTH SAVE	Adjusting the draught for optimal representation of the fairway

ROUTE...	SELECT	Selection of the current route
Only available with Route option	QUICK ROUTE	Provisional route by mouse to determine the planned arrival time
	VISIBLE	Show / Hide route
	IMPORT	Import routes in GPS Exchange format
	DELETE ALL	Delete all routes
	EXPORT	Export routes to USB stick
	EDITOR	Create, edit and clear own routes
	DEVIATION 70m	Distance for off-course alarm (50m - 250m)
	BEEP YES	Acoustic alarm message in case of course deviation

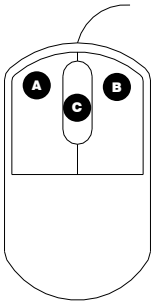
TRACK...	RECORD	Start new track recording (YES = Start, NO = Stop)
Only available with Track option	VISIBLE	Show / hide track (line of covered waypoints)
	INFO	View current and recorded tracks
	DELETE	Delete track
	DELETE ALL	Delete all tracks
	TRAIL 1.0h	Length of the displayed waypoints covered in hours
	CREATE ROUTE	Convert track to route (only in combination with route option)
	EXPORT	Export all tracks to USB stick

TRACK PLT	GL VISIBLE YES	Show guidelines of the argoTrackPilot system Yes/No
Only available with TrackPLT option	ALARM ON	Alarm messages of the argoTrackPilot On/Off

MOB...	SET	Man over board, Set MOB marker to current position
Only available with MAB option	INFO	Displaying the stored MOB markers with position and time
	DELETE ALL	Delete all MOB markers

Mouse operation

All functions of the device can be operated by mouse or trackball. Move the mouse pointer over the text and bar graphs in the corners of the screen. Modifiable fields can be selected with the left mouse button (A). The value is changed with the scroll wheel (C). The value is accepted by pressing the left mouse button (A). With the right mouse button (B) the value is not accepted.



Button functions of the mouse

A) Left mouse button => **ENTER**
select field
apply changes

B) Right mous button => **MENU**
open menu
do not accept chages

C) Scroll wheel => **ADJUST**
change value

Menu operation

The menu is opened by pressing the right mouse button. Move the mouse pointer to the desired menu item and select it with the left mouse button. Change the value with the scroll wheel. The change is accepted by pressing the left mouse button. The menu level is left with the right mouse button without applying the change.

Inhalt

1 Introduction

Thank you for choosing a product from SWISS RADAR. Please read this manual carefully to fully exploit the potential of this device and make operation easier for you.

1.1 Notes on this manual

In addition to information on operating the SWISS RADAR Precision Navigator II, this manual also contains useful guidance on optimizing the device's configuration. To navigate this user manual efficiently, refer to the alphabetical index located at the end. At the beginning of this manual, you will find a quick reference guide and a concise overview of menu functions, providing descriptions for each menu item.

The device can be operated using a mouse or trackball. For simplicity, this manual will refer to the term "mouse." The mouse symbol will be used in instructions related to mouse operation. Important information and notes will be presented in grey boxes. The symbols used have the following meanings:

Important information

☞ Note

⇨ See also under the following chapter

1.2 Main features of the device

The Precision Navigator II is a multifunctional river radar device that combines radar, Inland AIS, and ECDIS chart functionalities in a compact system. The device boasts the following main features:

- Precise and reliable display of the radar image
- Convenient access to all relevant functions through the compact control unit
- Intuitive operation and ergonomic menu navigation
- All functions can be operated using a mouse or trackball
- Display of AIS objects and access to AIS information
- Operation and configuration of AIS transponder without separate AIS control unit
- Direct integration of external devices such as AIS transponder, compass, GPS, echo sounder, rate of turn indicator, autopilot or rudder reference
- Display of ECDIS charts with customizable display options
- Overlay of radar image and charts (ECDIS) using newly developed SyncPlot® technology
- Easy card import via USB stick
- Sophisticated system analysis, optimized power consumption
- Saving and exporting screenshot blackbox recording (24h or 48h video recording with archive function)
- Optional track function (waypoint recording)
- Optional route function (display of routes in ECDIS and MAP mode)
- Optional integration of the argoTrackPilot

1.3 The Precision Navigator II: Components and connections

The Precision Navigator II consists of a display unit and an antenna unit. The antenna unit is connected to the display unit by the antenna cable.

The unit is powered by 230 volts AC. To ensure that the unit continues to operate in the event of a power failure, it is powered by a converter connected directly to the boat's battery. The converter converts the 24 volt battery voltage to 230 volts AC.

Installation, service and repair work must only be carried out by an approved and qualified specialist company.

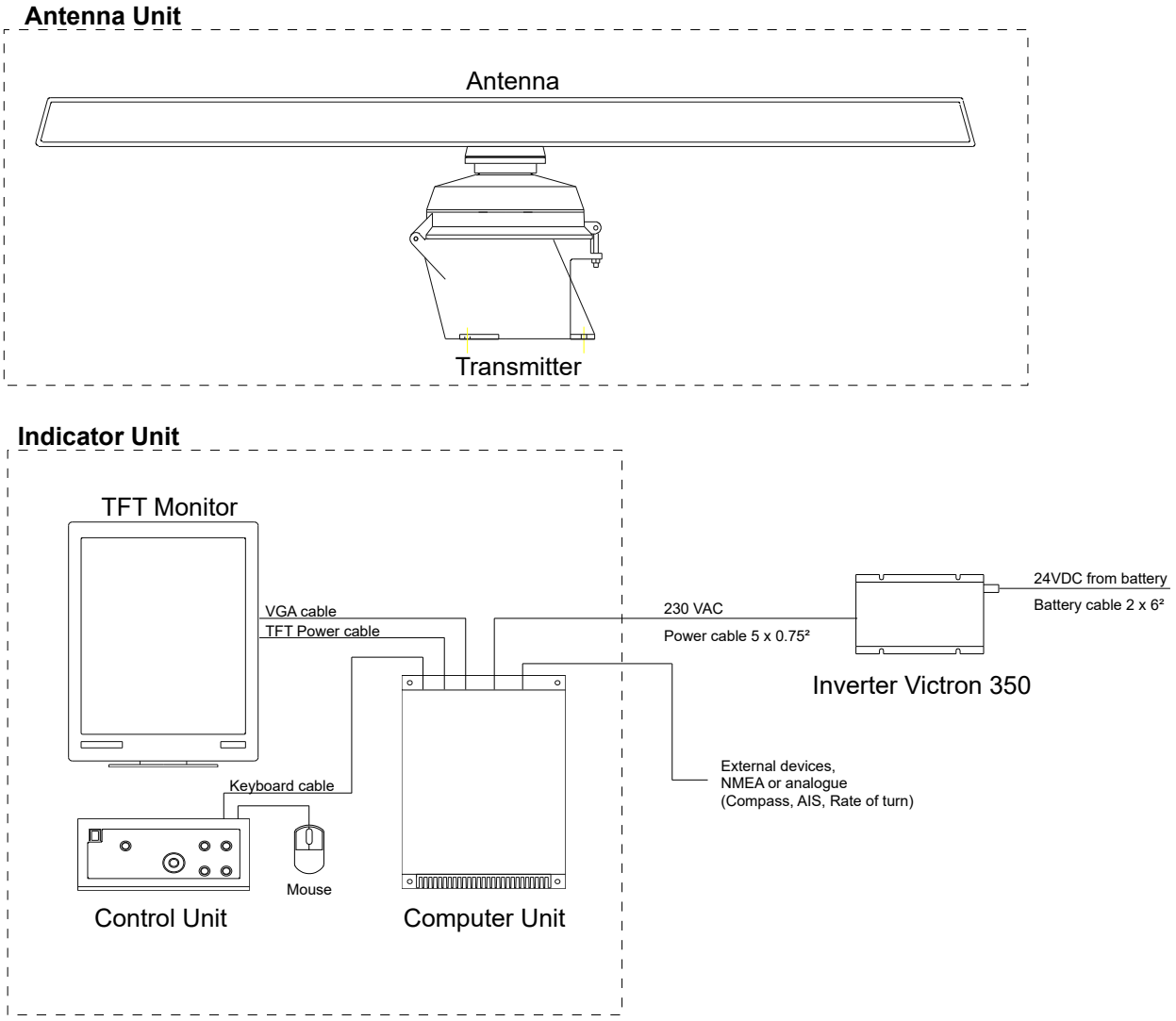


Figure 1: Precision Navigator II components

The display unit consists of a computer unit, a TFT monitor and a control unit.

The alphanumeric keyboard is used for text input. The USB connection for the keyboard is on the back of the control unit.

A mouse or trackball can also be used for operation.

> Do not use the USB port on the control unit for USB sticks or other USB devices! Use it only for the alphanumeric keyboard or mouse.

The computer unit has two USB ports. These are used for:

- Software and map updates
- Export of screenshots and video recordings to a USB stick
- Connection of mouse/trackball or alphanumeric keyboard

1.4 Device and software versions

The Precision Navigator II is available in three different versions:

BASIC	Only radar, no AIS, no digital interfaces
STANDARD	radar, AIS, digital interfaces
ECDIS	full versionwith radar, AIS function, ECDIS chart and digital interfaces

The Precision Navigator II can be upgraded. Please contact your SWISS RADAR representative if you wish to upgrade the AIS or ECDIS chart functions.

The software of the Precision Navigator II is constantly being expanded and improved. Your SWISS RADAR representative will be happy to inform you about new features and can update the software on your unit.

1.5 Care and maintenance

The device is designed for maintenance free operation. Fixed maintenance intervals are therefore not necessary.

The antenna unit is completely sealed, do not clean with strong jets of water as the seals are not designed for this. Clean them only with water and a soft brush.

Never use a pressure washer to clean the antenna unit!

Use a lint-free, soft cloth (microfibre) to clean the TFT monitor and keyboard. A mild glass cleaner can be used to remove grease stains.

1.6 Safety switch

The safety switch is located to the right of the antenna unit cable gland. When pressed, the antenna motor and transmitter cannot be switched on.

☞ If maintenance work is to be carried out near the antenna unit, the safety switch must be pressed so that no persons are endangered if the antenna motor is suddenly switched on.

1.7 Screen

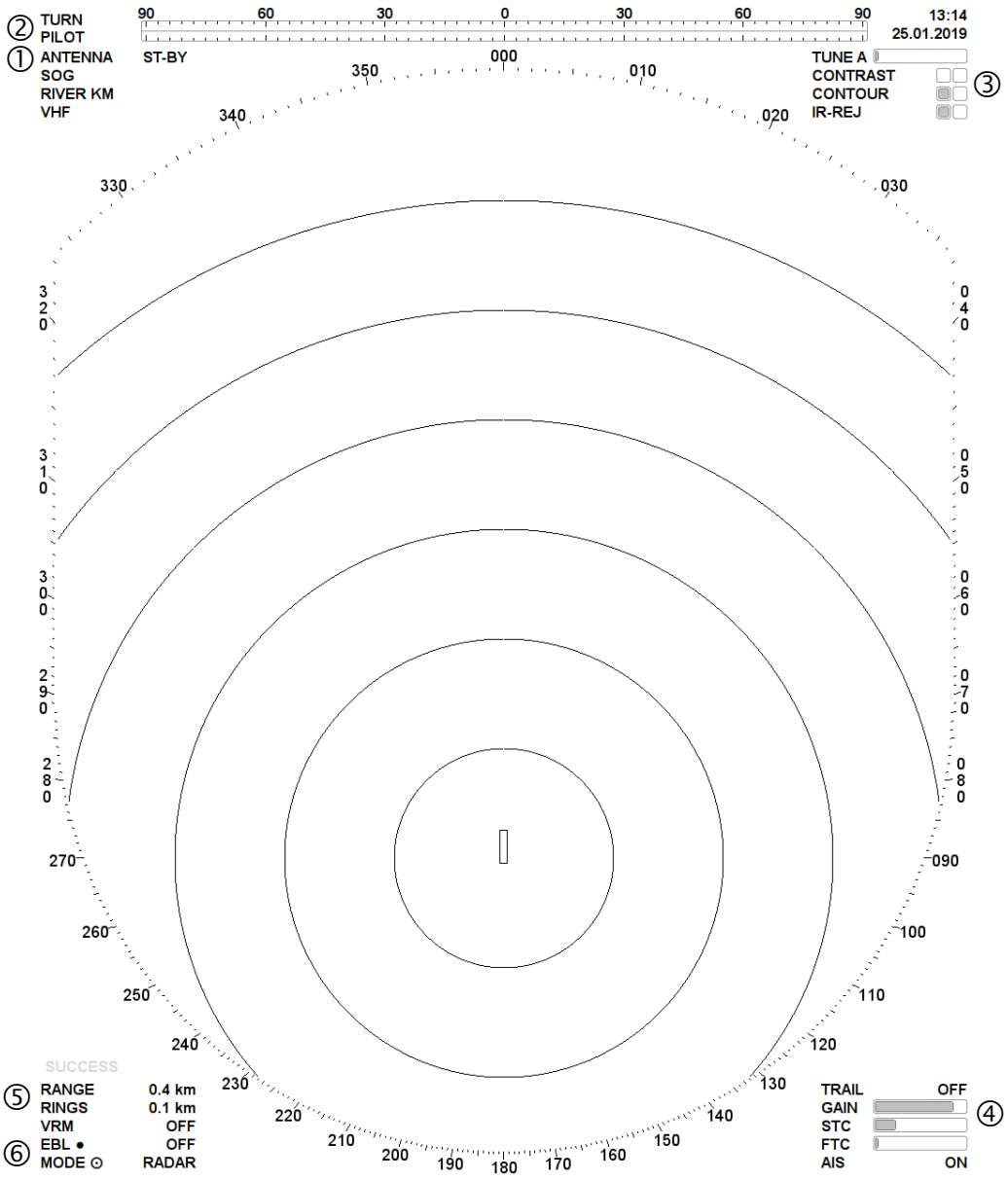


Figure 2: Screen

① Operating status display of the radar transmitter and display range for external devices

② Display of turn indicator and autopilot and rudder data

③ TUNE display and digital filters

④ Display of analogue filters, TRAIL level and selected AIS setting

⑤ Display of the current range and distance of the fixed range rings. Display range for the bearing line (EBL) and the variable measuring ring (VRM).

⑥ Display of the operating mode and any system messages.

1.8 Screen with menu

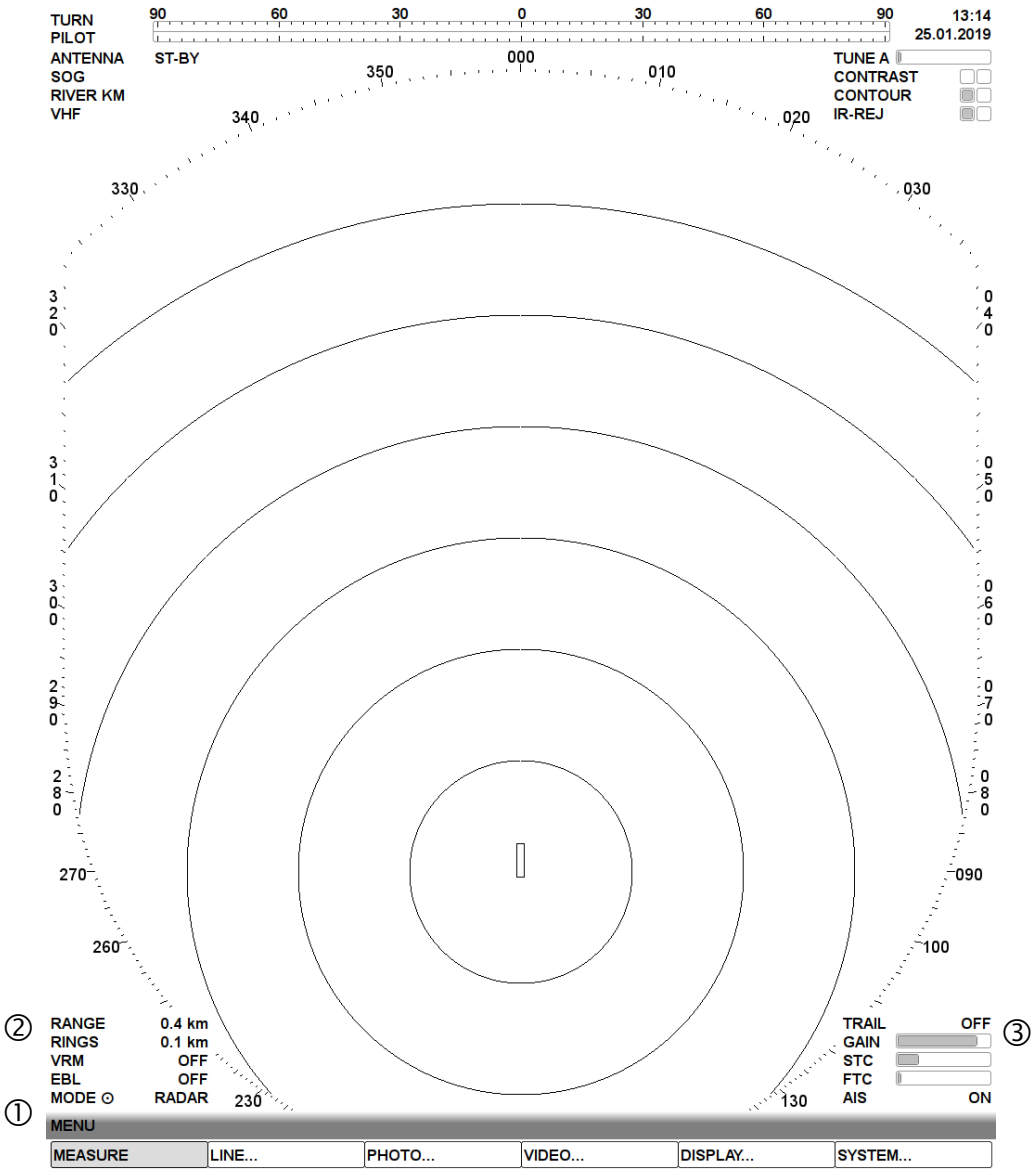


Abbildung 3: Bildschirm mit Menü

① Activated menu
② Shifted up display bottom left
③ Shifted up display bottom right

When the menu is activated, the two lower displays are moved upwards and the menu is displayed. The indicators and menu cover a small portion of the scale and radar image. It is recommended to hide the menu when not in use.

1.9 Control unit

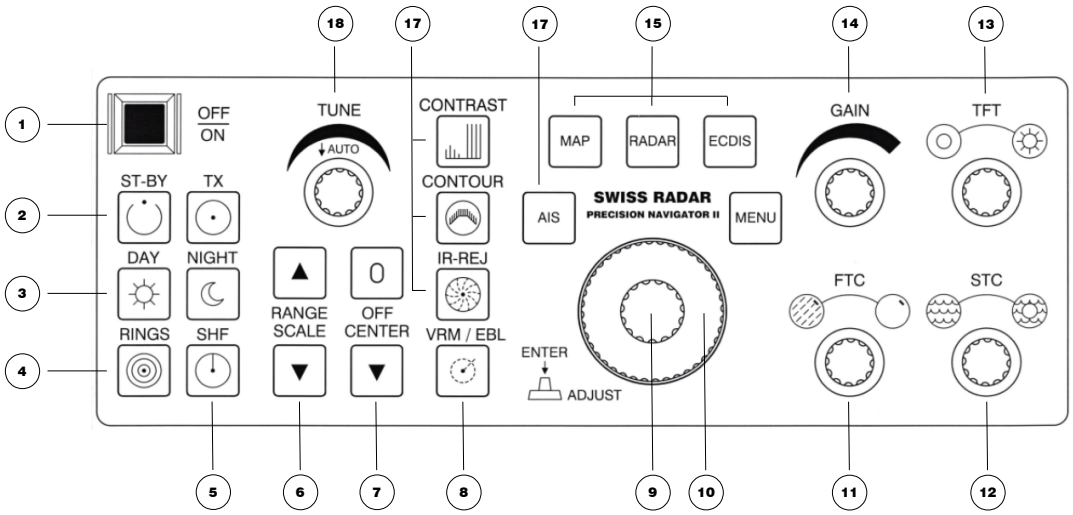


Figure 4: Control unit

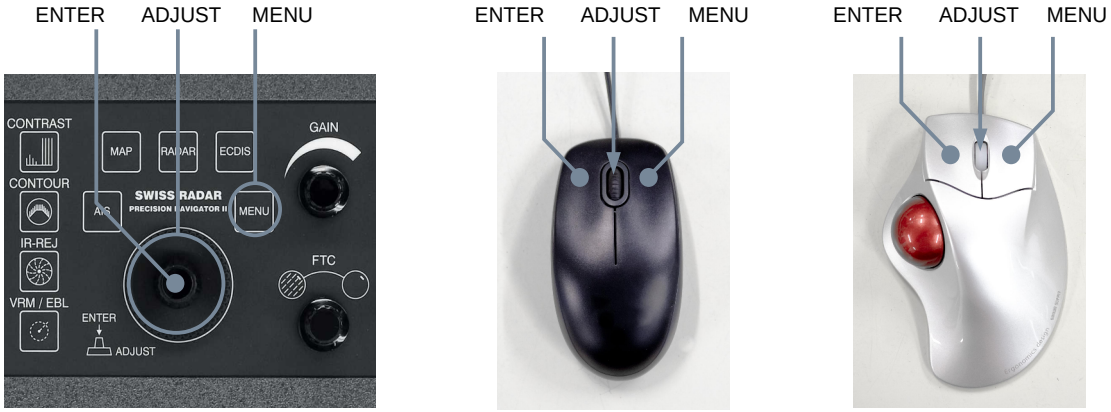
1	OFF / ON	Main switch for switching the device on and off
2	ST-BY / TX	Switching the transmitter and antenna motor off and on
3	DAY / NIGHT	Selection of the color combination
4	RINGS	Adjusting the brightness of the fixed range rings
5	SHF	Hide the price line
6	RANGE / SCALE	Arrow keys to select the distance range
7	OFFCENTER	Decentering of radar image and map
8	VRM / EBL	Show/hide the active measurement function
9	ENTER- Knopf	Menu control
10	ADJUST- Drehrad	Menu control, variable measuring ring, bearing line
11	FTC	Rain Drench
12	STC	Near echo attenuation
13	TFT	Brightness adjustment of the screen and keyboard
14	GAIN	Receiver gain
15	MENU	Show/hide menu, cancel menu function
16	MAP / RADAR / ECDIS	Selection of the operating mode chart, radar or ECDIS
17	AIS	Show/hide AIS objects
18	CONTRAST/CONTOUR/IR-REJ	Digital filters
19	TUNE	Automatic or manual tuning

1.10 Operation of the device via mouse or trackball

All functions can be controlled using a mouse or trackball. Exceptions are the main power switch and the screen brightness control.

> The control devices (mouse/trackball) must be connected to the computer unit or control unit via a USB cable. Two buttons and a scroll wheel are required for operation. Control devices with a wireless connection are not permitted.

When a control device is connected, the mouse pointer appears on the screen. The control panel of the Precision Navigator II remains active and provides direct access to all major functions of the instrument as usual.



Control unit PN II | Mouse | Trackball

Abbildung 5: Mouse and Trackball

The left mouse button corresponds to the ENTER button on the control unit.

The scroll wheel corresponds to the ADJUST rotating ring on the control unit.

The right mouse button corresponds to the MENU button of the control unit.

1.10.1 Display on the screen

Figure 6: Mouse pointer

Figure 7: activatable field

Figure 8: activated field

The mouse pointer is displayed in black with a white border. It can be moved freely over the entire screen (Fig. 6).

If you move the mouse pointer over a field whose value can be changed, a frame appears around this activatable field and the mouse pointer is displayed as a hand (Fig. 7).

The field is activated by pressing the left mouse button (ENTER). The field is now highlighted.

The value can now be changed using the scroll wheel (ADJUST). The change is immediately reflected in the radar picture.

The left mouse button (ENTER) accepts the changes. Using the right mouse button (MENU) the changes are not accepted and the field is deactivated.

If no field is active, the right mouse button (MENU) opens the menu at the bottom of the screen.

A menu item is opened by clicking with the left mouse button (ENTER). The value can be changed using the scroll wheel (ADJUST).

The changes are accepted by pressing the left mouse button (ENTER). Pressing the right mouse button (MENU) discards the changes and closes the menu item. A further press of the right mouse button (MENU) closes the menu at the bottom of the screen.

1.11 Text input

When the mouse is connected, an on-screen keyboard is displayed for text input if no alphanumeric keyboard is connected. The small alphanumeric keyboard is available as an option for convenient text input.

Abbildung 9: Alphanumeric keyboard and on-screen keyboard

☞ Pressing the "Print" key on the alphanumeric keyboard will take a screenshot.

☞ With the "INSERT" key a new folder can be inserted on the USB stick. This function is also available on the on-screen keyboard.

2 Basic functions

2.1 Main switch - ON / OFF

The green on/off button is located on the control panel. Press and hold the button for one second to turn the unit on.

Shortly after switching on, a start logo will appear on the screen. This is followed by a warm-up period of 60 seconds. When the counter in the centre of the screen has run down, the unit is ready for use. The unit is now in standby radar mode. The screen and control unit are set to maximum brightness when switched on.

To turn off the unit, press and hold the green button for 2 seconds. When pressed, the user information is stored and the unit switches off. After approximately 20 seconds, the power supply can be disconnected.

Do not disconnect the power supply until the shutdown process has been completed. Otherwise, data that is only periodically backed up may be lost.

☞ Depending on the installation, the converter will be switched off by the radar control unit after shutdown.

2.2 Operating mode

This unit has a chart, radar and ECDIS operating mode. It is possible to switch between the different modes using the MAP, RADAR and ECDIS keys. It is possible to switch to a neutral, low-information environment at any time.

In the default setting, the unit is in radar mode.

☞ In the default setting, the unit is in radar mode.

The screen at the bottom left shows the current mode RADAR, ECDIS or MAP. Move the mouse pointer to the mode to be changed, select it and choose the desired mode with the scroll wheel.

2.2.1 Radar mode - RADAR

In radar mode, the radar echoes are displayed on a constant background. The displays contain all data relevant for navigation. AIS objects can be displayed in radar mode.

2.2.2 ECDIS mode - ECDIS

In ECDIS mode (navigation mode) the radar echoes are displayed with a chart as background. The map and echoes are displayed using the newly developed SyncPlot® technology. Radar image and map are updated synchronously in real time. This image updating technique, developed by SWISS RADAR, produces a pleasant, calm image with coverage-accurate overlay display.

⇨ Map Mode

2.2.3 Map Mode - MAP

Map mode (information mode) is available on the main navigation unit only in standby. The entire display area of the screen is used for the display. Map mode has three independent work surfaces. The MAP key is used to switch between the work surfaces. The three work surfaces (desktops) can be freely configured. Except for the display at the bottom left with MODE, DESKTOP and status display, AIS, chart and other navigation aids can be freely configured on each desktop. More detailed information can be found in the MAP MODE chapter.

⇨ Map Mode

2.3 Status display - MODE

The status display of the device is located at the bottom left on the screen. If there is no fault or message, the current operation mode is displayed. In addition, the current level of detail of the map is displayed in map and ECDIS mode. More detailed information about the displayed message can be output in the alarm report if required.

⇨ Alarm Report

The device has an alarm, warning and message system. Alarms, warnings and messages are prioritized in the status display. Alarms are prioritized higher than warnings and warnings higher than messages. If several alarms, warnings or messages are pending, only the one with the highest priority is displayed.

The states are displayed in three different colors: red, orange, yellow and green. The following color assignment

applies:

- red = alarm (critical)
- orange = warning (urgent)
- yellow = message (for information)
- green = operating status (everything OK)

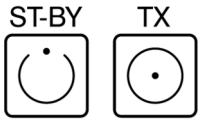
The red and orange status indicators (alarms and warnings) also flash.

☞ The alarms, warnings and messages are summarized in the appendix.

2.4 Switching on the antenna - ST-BY / TX

Before switching on, check that the antenna can rotate freely!

After pressing the TX button, the antenna motor and transmitter are turned on. The ANTENNA display (top left of the screen) changes from ST-BY to TX. In addition, the pulse length (SP, MP, LP) is displayed.



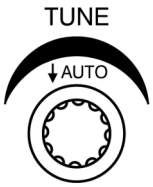
- SP = short pulse length (short pulse)
- MP = medium pulse length
- LP = long pulse length

Pressing the ST-BY button switches off the antenna motor and transmitter. The unit is in standby. The RADAR display changes to ST-BY.

Move the mouse pointer to the field to the right of ANTENNA, select it and use the scroll wheel to choose between ST-BY and TX. After pressing the left mouse button, the antenna is switched on or off.

2.5 Tuning - TUNE

The tuning can be done automatically or manually. After switching on (basic setting), the device is always in Auto- Tune mode. Pressing the TUNE button will activate or deactivate Auto-Tune. If an A (for Automatic) is displayed next to the Tune indicator, the function is active. Otherwise, an M (for Manual) will be displayed.



The length of the tune indicator bar on the screen becomes shorter when the radar is switched to a smaller range, because the transmit power decreases gradually the shorter the set range is.

2.5.1 Automatic

Pressing the TUNE button disables manual tuning and activates the Auto-Tune function.

☞ TUNE A: The device tunes itself and adjusts automatically.

2.5.2 Manual

Manual tuning of the receiver must be carried out over a wide range (16 km or greater), because this is where the transmitter delivers the most power (longe pulse). The Tune display has the largest deflection in this range.

The rotary knob (TUNE) is first turned to the left until the Tune display (TUNE at the top right of the screen) becomes minimal. Then the knob is slowly turned to the right until Tune has the largest deflection. This means that the radar receiver is set to its highest sensitivity.

☞ TUNE M: The device must be tuned manually, over a wide range of at least 16km.

☞ Since the Tune knob has no limit, the minimum/maximum must be read from the Tune display.

Move the mouse pointer to the TUNE field, select it and choose the value between M and A with the scroll wheel. After pressing the left mouse button the value is taken over. With manual tuning, the TUNE indicator bar can be selected. Use the scroll wheel for manual tuning, press the left mouse button to save the TUNE value.

2.6 Basic settings

2.6.1 Gain - GAIN

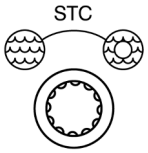
The GAIN is set to maximum after switching on and should remain so for the basic setting. Only

during strong atmospheric disturbances can a small reduction in gain help to separate large and small echoes. Such as: Heavy rain obscuring a coastline, at lock entrances, or between other highly reflective objects.

☞ Since the GAIN knob has no limit, the minimum/maximum must be read from the GAIN display.

Move the mouse pointer to the GAIN bar, select it and adjust the gain with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.6.2 Near echo attenuation - STC

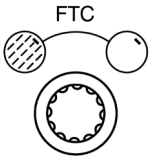


The near echo attenuation, also called wave de-attenuation, is at minimum after start-up (default setting). The STC control works as follows: By turning it to the right, the radar receiver close to the antenna (own ship) is increasingly reduced in its sensitivity - until the echoes around the center point become increasingly fainter in appearance. This knob must be operated very carefully, otherwise even strong objects will no longer be displayed.

☞ Since the STC knob has no limit, the minimum/maximum must be read from the STC display.

Move the mouse pointer to the STC display bar, select it and set the near echo attenuation with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.6.3 Rain interference suppression - FTC



The rainfall dampening is automatically set to minimum after start-up (default setting). This knob causes a variably adjustable differentiation of the echoes and separates area-like accumulations of targets. With full clockwise rotation, the greatest possible radial resolution is achieved.

☞ Since the FTC knob has no limit, the minimum/maximum must be read from the FTC display.

Move the mouse pointer to the FTC display bar, select it and set the rainfall turbidity with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.7 Distance range - RANGE

The radar unit is set to the desired range by pressing one of the two arrow keys or to the desired range (RANGE).

The set distance range can be read at the bottom left of the image. The displayed distance always refers to the radius of the outermost ring in 90° or 270° direction.

In the default setting, the device is on the 16 km range.

The following distance ranges can be set:

Range (RANGE) [km]	**Ring Distance (RINGS) [km].**
0.2	0.05
0.3	0.05
0.4	0.1
0.5	0.1
0.8	0.2
1.2	0.2
1.6	0.4
2	0.4
4	1
8	2
16	4
32	8
64	16
100 *	20
200 *	40
300 *	50
500 *	100

Table 1: Distance ranges

***** These areas can only be selected in map mode.

☞ On systems with multiple displays, between 0.2 and 1.2 km the ranges can be selected independently.

Move the mouse pointer to the current RANGE value, select it and set the desired range with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.8 Fixed distance measuring rings - RINGS

The fixed distance measuring rings are useful to better estimate the distance of objects. The distance between two rings can be read under RINGS.

Each press of the RINGS button decreases the ring brightness by one level. The function has a total of three brightness levels. At the minimum brightness level, pressing again causes the rings to switch off (fourth level). The brightness of the rings is saved.

Move the mouse pointer to RINGS, select and set the desired ring brightness with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.9 Decentering - OFF CENTER

Due to the portrait format, the radar image is expanded by 44% in the forward direction.

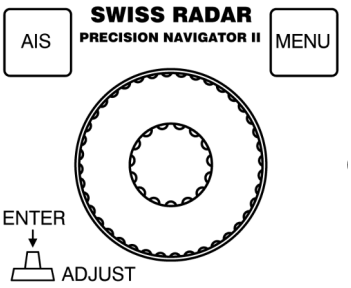
An example: The distance range (RANGE) shows 16 km, then the diameter of the image is 32 km and in the forward direction, measured from the center, about 23 km distance is shown.

If this foresight is not enough, 5 more decentering steps can be set with the OFF-CENTER button. The degrees and the scale are adjusted to the decentration.

Pressing the 0 button cancels the decentering and returns the image to its normal position.

The decentering of the radar image can be adjusted with the mouse in the menu under DISPLAY.../OFF-CENTER.

2.10 Menu control



2.10.1 Activating the menu - MENU

Pressing the MENU button displays the menu at the bottom of the screen.

☞ When the menu is activated, VRM and EBL remain at their current position.

If no field has been activated with the mouse pointer, the menu opens by pressing the right mouse button. The left mouse button selects a menu item, the right mouse button closes the current menu item. Pressing the right mouse button again closes the menu.

2.10.2 Exiting the menu - MENU

If the MENU key is pressed while the menu is active, the current function is cancelled or the menu is moved up one level. The menu is exited at the top level. If switched on, VRM and EBL can be moved again with the ADJUST dial.

2.10.3 Navigating the menu

- The selection of a menu item is done by the ADJUST-rotary wheel.
- The selection of a menu item is made by pressing the ENTER button.
- Exiting a menu item is done with the menu key.

☞ A function can be cancelled at any time by pressing the menu key.

2.10.4 Main menu items

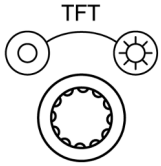
Depending on the operating mode, different main menu items are visible. For example, map settings can only be changed in map or ECDIS mode. In RADAR mode the menu item MAP is not available. The complete menu tree can be found in the appendix.

MAP	**RADAR**	**ECDIS**
MAP	AIS	MAP
AIS	MEASURE	AIS
MEASURE	LINE	MEASURE
LINE	PHOTO	LINE
PHOTO	VIDEO	PHOTO
VIDEO	DISPLAY	VIDEO
ROUTE		ROUTE
TRACK		TRACK
MOB		MOB

MAP	RADAR	ECDIS
DISPLAY	SYSTEM	DISPLAY
SYSTEM		SYSTEM

Table 2: Menu items

2.11 Brightness of screen and control panel



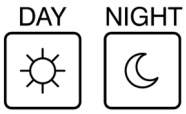
After switching on the device (basic setting), the brightness of the screen and the control unit is at its maximum. The brightness of the operating panel is subsequently dimmed to the last set value. Turning the TFT rotary knob adjusts the brightness of the screen and the operating panel.

If the SHF key is pressed at the same time, the brightness of the control panel can be set independently of the TFT brightness. The set value is saved.

☞ Since the TFT rotary knob has no limit, the minimum/maximum must be detected on the screen.

The brightness of the screen cannot be controlled with the mouse

2.12 Colour selection - DAY and NIGHT



The user can choose between five different colour combinations for day and night. The selection is made with the DAY or NIGHT button.

After switching on the system, the unit is automatically in day mode. The most suitable display for the respective situation can be changed, without loss of information, even during radar travel.

Each press of the corresponding button changes the color combination. After reaching the last colour combination, the change back to the first colour combination takes place. The selected colour combination is stored for day and night.

☞ The colour selection can also be made via the menu Display - DISPLAY

☞ In a system with several devices, the day and night mode is adopted by Allen.

The color change with the mouse is done in the MENU under DISPLAY in the submenu COLOR. Use the scroll wheel to select between DAY and NIGHT, press the left mouse button to save the value.

The color scheme for DAY and NIGHT is set in the MENU under DISPLAY in the DAY and NIGHT submenus.

2.13 Variable Range marker and bearing line - VRM and EBL

Determining the distance and bearing of a target using VRM and EBL is a useful and important function. The distance in kilometres and the bearing angle in degrees are displayed at the bottom left of the screen.

☞ When the menu is active, VRM and EBL cannot be operated.

☞ The displayed bearing (VRM and EBL) is always relative to the radar antenna!

In the default setting, the variable measuring ring (VRM) is at the zero meter position in the center of the image. The bearing line (EBL) is switched off.

Pressing the ENTER button switches between VRM and EBL. The active VRM or EBL is marked by a dot behind the label of VRM or EBL.

Pressing the VRM/EBL key switches the selected VRM or EBL on or off. Whether VRM or EBL is switched on/off is indicated by the display of a value or OFF.

The selected VRM or EBL is positioned by the ADJUST dial. If the selected VRM or EBL is switched off (OFF), turning the ADJUST dial has no effect.

If a switched-off VRM or EBL is selected (press ENTER button), it is automatically switched on. It is assumed that the selected one is to be used.

VRM and EBL can be activated by selecting them with the mouse. Move the mouse pointer to VRM or EBL, select and switch on or off with the scroll wheel.

Move the mouse pointer to the value of the VRM / EBL, select it and set the desired position with the scroll wheel. After pressing the left mouse button, the set value is saved.

2.14 Hide ships head flash- SHF

SHF (ships head flash) is only a designation for the extended keel line of the own ship in the radar picture, course line or "head marker" are also used.

If the navigator is concerned that the course line is masking a small echo, the SHF key can be pressed for a moment to turn the course line off. After releasing the key, the course line will reappear.

☞ The price line cannot be hidden with the mouse.

2.15 Turn indicator, autopilot, rudder position

A scale at the top of the screen shows the rate of turn in degrees per minute and, if installed, also the autopilot or rudder reference. This frees the navigator from having to keep track of several different devices.

The lower pointer indicates the target course change speed or rudder angle, while the upper pointer, with the inertia of the vessel, slowly follows the target. After a short time, the upper pointer will be in line with the lower pointer, indicating to the navigator that the vessel is turning at the set speed.

☞ When the turn indicator is off, the hands within the scale are hidden.

2.15.1 Turn Indicator - RED

Rate-of-turn indicators with analogue data output or NMEA data output can be connected to the radar display unit.

2.15.2 Autopilot - PILOT

The prerequisite for using this function is that the autopilot is equipped with an analog or digital data output.

2.15.3 Rudder specification - RUDDER

The prerequisite for using this function is that the rudder position is fed in via an analogue or digital channel.

2.16 Display - DISPLAY

The OFF-CENTER, COLOR and DAY/NIGHT functions can be controlled directly with the control unit. For operation with the mouse, these functions are additionally listed in the menu under DISPLAY.

2.16.1 Decentering - OFFCENTER

The radar image can be decentered downwards by 5 steps. This menu has the same function as the OFF CENTER button on the front panel.

DISPLAY... → **OFF-CENTER**

2.16.2 Brightness of the fixed distance measuring rings - RINGS

The fixed distance measuring rings can be displayed in 3 different brightness levels. This menu has the same function as pressing the RINGS button several times.

DISPLAY... → **RINGS**

2.16.3 Color scheme - COLOR

It switches between the two color schemes day and night. This menu has the same function as the DAY and NIGHT buttons.

DISPLAY... → **COLOR DAY**

2.16.4 Color Palette - DAY / NIGHT

It selects between the different color palettes of day and night. This menu has the same function as pressing the DAY and NIGHT buttons several times.

DISPLAY... → **DAY 0**

2.16.5 Afterglow track - TRAIL

The Trail function allows the navigator to store the movement of targets for a specified time. The trail level indicates how many turns of the antenna elapse before an echo is no longer seen.

If the own ship is not moving, all targets are displayed in their true motion (relative true motion). For better recognizability, the targets are displayed in different brightness levels. This means that a moving target will always have a bright front in the direction of movement, while the older positions will be shown in dimmed brightness until the trail time has expired.

When radar is navigating in rivers or similar narrow waters, turning on the trail function is not recommended. In a larger environment such as lakes, etc., an appropriate trail level can improve the early detection of very small targets. Such targets are usually not large enough to give a good echo every time the antenna is turned. However, if they are acquired and stored every now and then, they are easy to spot on the screen. The speed of a moving object can be estimated using the trail function.

The Trail function is deactivated in the default setting.

☞ To operate the Trail function, the unit must be in RADAR or ECDIS mode.

DISPLAY... → **TRAIL OFF**

3 Digital filters

This device has contrast, contour and interference rejection filters. All filters can be operated individually or mixed. Each filter has three levels of operation: Off, Medium, and Full.

Contrast, Contour and Interference Reject filters are operated via separate keys on the keyboard. This gives the navigator extremely fast and direct access. The states of the filters are displayed on the top right of the screen.

3.1 Contrast - CONTRAST

Contrast means to create the greatest possible difference between the echo signal and the background on the screen in the radar image. The JFS contrast filter performs several functions simultaneously, with the aim of making operation as simple as possible for the navigator.

When the CONTRAST button is used to turn on the middle stage, the following filters are put into operation:

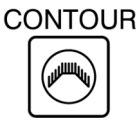
- A newly developed noise filter removes all noise components normally visible on any radar when the receiver gain (GAIN) is set to maximum.
- The filter for interference suppression caused by foreign radar equipment is switched on.
- The lowest echo signal level, which generally contains only interfering elements, is cut off and not displayed.

At full contrast setting (press CONTRAST key twice), the threshold for suppressing unwanted echoes is increased again. All signals, regardless of their strength, are displayed with the highest brightness level. In the default setting, the contrast filter is switched off.

Move the mouse pointer to the two squares next to CONTRAST, select and set the desired level with the scroll wheel. After pressing the left mouse button, the set value is saved.

3.2 Contour - CONTOUR

☞ Contour filter is a worldwide patented method of the company JFS electronic to display radar echoes!



The contour filter shows the normal radar image in a map-like manner. The extent of a target is delineated by a sharp line, and with a very high degree of accuracy. Coastal courses which are difficult to detect, especially when strongly and weakly reflecting targets alternate, are then displayed as homogeneous and easily recognizable connected lines by the possibility of the contour function. Within an echo area, the brightness is reset in two steps, depending on the setting, to obtain a completely glare-free image, which is especially important during navigation in the dark. Also a comparison with maps becomes very easy.

When the contour is turned on without other filter functions, an automatic function ensures that the noise and noise reduction filters are also activated. The effect is similar to the contrast filter and simplifies operation. By default, the contour filter is turned off.

Move the mouse pointer to the two squares next to CONTOUR, select and set the desired level with the scroll wheel. After pressing the left mouse button, the set value is saved.

3.3 Interference Rejection - IR-REJ

In the event that no other filter is engaged, the first stage will not suppress receiver noise and will only attenuate interference from other radars operating on the same frequency. This special type of filtering was built into the radar to retain the ability to receive regulatory radar signals (radar beacons and SART's) while reducing extraneous interference.

The second stage increases the interference suppression and at the same time the receiver noise is also suppressed. In the default setting, interference suppression is switched off.

☞ It is not necessary to activate this filter if one of the three others has already been set in function!

Move the mouse pointer to the two squares next to IR-REJ, select and set the desired level with the scroll wheel. After pressing the left mouse button, the set value is saved.

4 Navigation lines - LINE

The Navigation Lines feature allows the navigator to display lines for navigation. The navigation lines maintain the forward orientation.

4.1 Ship outline

The ship contour shows the own ship in the radar image. In this menu the contour of the selected configuration can be extended. This is especially useful if a configuration is used and e.g. a barque changes frequently.

☞ The configuration is set in the SERVICE/CONFIG_n/SHIP menu.

☞ The current configuration is selected in the SYSTEM/SHIP CONFIG menu.

☞ This way of changing the ship outline is useful when the configuration changes frequently.

4.1.1 Brightness - BRILLIANCE

The large amount of information on the radar image can overwhelm the eye. Therefore it is possible to darken or fade out the ship's outline.

LINE... → **SHAPE...** → **BRILLIANCE**

4.1.2 Activate - ADD ENABLE

If the additional ship outline is not needed, it can be deactivated. This is e.g. the case if a tug is sailing without a barge in the basic configuration. The adjusted dimension is transmitted to a connected AIS.

LINE... → **SHAPE...** → **ADD ENABLE NO**

4.2 Enlarge ship contour - ADD

The ship's outline can be expanded. This can be done on the bow, stern, starboard and port. The configuration contour and the expanded contour are displayed on the screen. The adjusted length and beam is transmitted to a connected AIS.

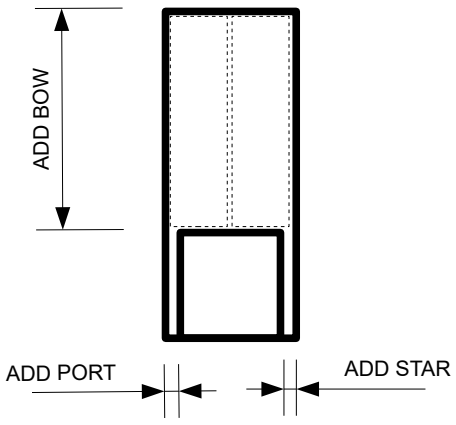


Figure 10: Enlarge the ship's outline

LINE... → **SHAPE...** → **ADD BOW**

4.2.1 Reset settings - DEFAULT

The settings can be reset. The following table shows the values after resetting.

Menu item	Default
BRILLIANCE	FULL
ADD ENABLE	NO
ADD BOW	0m
ADD STAR	0 m
ADD PORT	0 m
ADD STAR	0m

Table 3: Ship Outline Settings Default

LINE... → **SHAPE...** → **DEFAULT**

4.3 Nav Lines

Nav lines are auxiliary lines that are displayed parallel to the course and extend over the entire radar image. They are used for navigation, e.g. if a minimum distance to the shore is to be kept. In MAP mode, the nav lines can be defined differently for the three desktops. Changes are only applied to the active desktop.

4.3.1 Distance - DIST

The distance of the left and right nav lines to the center point is set.

LINE... → **NAV-LINE L...** → **DIST 0.000 KM**

4.3.2 Visibility - VISIBLE

As Nav-Lines are not always needed, they can be switched on/off separately.

LINE... → **NAV-LINE L...** → **VISIBLE NO**

4.4 EBL 2 and 3

The angle of EBL 2 and 3 to the advance line is determined.

LINE... → **EBL...** → **EBL 2 0,0°**

4.4.1 Visibility of EBL 2 and 3 - VISIBLE EBL 2/3

Since EBL 2 and 3 are not always required, they can be switched on/off separately.

LINE... → **EBL...** → **VISIBLE NO**

4.5 VRM 2 and 3

The radius of VRM 2 and 3 to the center point is determined.

LINE... → **VRM** → **VRM 2 0.000 KM**

4.5.1 Visibility of VRM 2 and 3 - VISIBLE VRM 2/3

Since the VRM (2, 3) are not always required, they can be switched on/off separately.

LINE... → **VRM** → **VISIBLE 2 NO**

4.6 Position prediction – POS PREDICT

The position of the vessel is forecast. The predicted lane is shown with two lines. The lines indicate the vessel's predicted track, provided no changes in direction or speed are made.
The lines always originate at the exposed corners or edges of the vessel. Compass and rate-of-turn indicator data are required to calculate the prediction lines.

☞ Drift, wind and other disturbances can cause a deviation from the predicted lane.

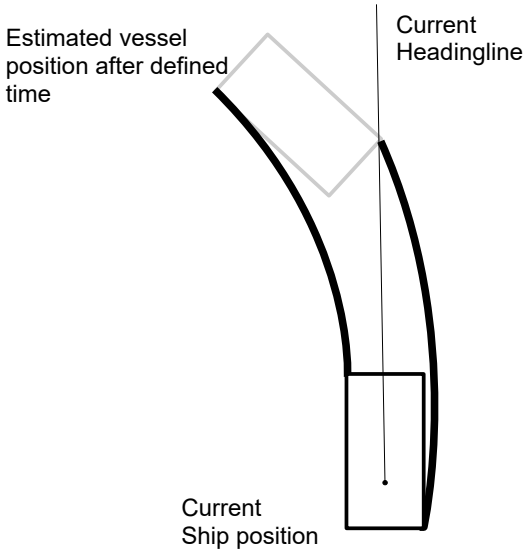


Figure 11: Schematic representation of the position prediction

4.6.1 Forecast time- TIME

The length of the lines depends on the current speed and the set forecast time. The prediction time can be selected between 0 and 300 seconds. With OFF, the position prediction is switched off.

LINE... → **POS PREDICT** → **TIME OFF**

4.6.2 Damping - DAMP

The position prediction reacts more or less sensitively to the measured values. According to the inertia of the vessel, or in case of strongly fluctuating measured values, the damping value used for the calculation can be adjusted.

LINE... → **POS PREDICT** → **DAMP 5**

5 Screenshot

5.1 Create screenshot - SHOT

A screenshot can be created from the screen content. This allows you to capture interesting and tricky situations. Up to one thousand screenshots can be created. For further screenshots, the used memory space must first be released. A maximum of one screenshot per second can be created. Successful saving is confirmed with PHOTO x/1000.

PHOTO... → **SHOT**

☞ A screenshot can be conveniently created by pressing the print key on the alphanumeric keyboard.

☞ In MAP mode you can create a screenshot using TOOLBAR

5.2 View screenshot - SHOW

The taken screenshots can be viewed. To avoid confusion with the real radar image, they are displayed on the screen at about 3/4 of the original size.

☞ Screenshots can only be viewed in standby.

PHOTO... → **SHOW**

5.3 Export screenshot - EXPORT

The taken screenshots can be exported to a USB stick. The screenshots are saved in sequence from 0001 to 1000 in .png (Portable Network Graphic) format. The most recent screenshot has the largest number.

Insert a USB stick into a USB slot on the computer unit (not on the control unit!). As soon as a USB stick is detected, DISK PLUG-IN is displayed.

The folder structure can be edited via the keyboard. A directory is created with the Insert key. The name is entered and accepted with the Return key. The Del key is used to delete a directory and its files.

All screenshots are exported to the selected folder. Successful saving is confirmed with SUCCESS. The USB stick can then be removed.

☞ Screenshots can only be exported in standby.

PHOTO... → **EXPORT**

5.4 Delete screenshots - DELETE ALL

If the maximum reserved memory is used up or if "old" screenshots are to be disposed of, they can be deleted. Successful deletion is confirmed with SUCCESS.

All taken screenshots will be deleted!

☞ Screenshots can only be deleted in standby.

PHOTO... → **DELETE ALL**

6 Chart functions

The chart function is an important part of this device. Charts can be displayed on the one hand in ECDIS mode with radar overlay or as navigation and planning aid in chart mode. The MAP mode can be used as information mode for voyage planning or during the voyage with the chart running along, optionally with AIS and navigation data on three freely definable desktops.

Most of the functions described in this chapter are available in ECDIS as well as in MAP mode.

6.1 Measuring functions - MEASURE

For special surveying tasks, a distance measuring device is available which can perform the following tasks:

- Any point on the radar image can be measured against any other point. For example, the river width, a buoy distance, a ship length.
- The time between 2 measurements is registered and the speed is calculated from the distance and displayed in km/h.

The survey function makes it possible to take measurements within the radar image with metre accuracy quickly and safely. And not as usual from the center (location of the radar antenna), but from any point to another.

MEASURE

When the radar system is operated stationary, very precise control measurements can be made, such as speed of other ships, or positions of buoys, pontoons, dredgers, as well as any other object. The application possibilities are manifold and can complement or even replace other methods.

To carry out the measurement, the mouse pointer is moved to the desired measuring points with the double rotary wheel of the control unit, the measuring points are selected with ENTER.

Select the two measuring points with the mouse pointer.

6.2 VHF Station - VHF STATION

Detailed information on FM frequencies can be displayed. These are obtained from the loaded charts.

MAP... → **VHF STATION**

☞ Reports can only be displayed in chart or ECDIS mode.

6.3 Pick Report - PICK REPORT

Detailed information can be displayed from a point on a chart.

MAP... → **PICK REPORT**

☞ Reports can only be displayed in chart or ECDIS mode.

☞ In MAP mode, chart information can be conveniently queried with the TOOLBAR.

⇨ Information about AIS objects can be displayed via TARGET LIST.

Select the desired chart element with the mouse pointer, information is displayed.

6.4 Chart settings - SETTING

☞ In MAP mode, three different desktops are available (see chapter MAP mode). Some of the following chart settings can be defined differently for each desktop. In this case, changes only apply to the active desktop.

6.4.1 Show chart - MAP

To realize a display without a chart, the chart can be deactivated.

☞ The chart can only be deactivated in map mode. The setting refers to the active workspace.

MAP... → **SETTING...** → **MAP ON**

6.4.2 Information density - INF DENSITY

You can choose between three levels of detail (Minimal - Standard - All). The chart is then displayed with more or less information. However, this has no influence on the accuracy of the chart.

- Minimal: An absolutely minimalist card.
- Standard: The usual density of information.
- Everything: All information that is available is displayed.

☞ All safety-relevant objects are retained at every level of detail!

☞ The information density in ECDIS and MAP mode are independent of each other. The setting in MAP Mode refers to the active workspace.

MAP... → **SETTING...** → **INF DENSITY STD**

6.4.3 Text - TEXT

Some charts were not created very carefully and contain far too much textual information. The much information on the chart can overwhelm the eye. Therefore it is possible to hide the text.

☞ The display of text in ECDIS and MAP Mode are independent of each other. The setting in MAP Mode refers to the active workspace.

MAP... → **SETTING...** → **TEXT OFF**

6.4.4 Text size - TEXT SIZE

The text size of the card can be selected.

☞ The text size in ECDIS and MAP mode are independent of each other. The setting in MAP mode applies to all work surfaces.

MAP... → **SETTING...** → **TEXT SIZE MEDIUM**

6.4.5 Day Colors - DAY

In order to optimally adjust the brightness of the chart to the ambient brightness, the colour scheme of the chart can be set for day and night. You can choose between three day schemes (dark covered day - light covered day - bright day).

☞ The colors in ECDIS and MAP Mode are independent of each other. The setting in MAP mode applies to all work surfaces.

MAP... → **SETTING...** → **DAY BRIGHT**

6.4.6 Night colours - NIGHT

You can choose between three night schemes (filtered night - unfiltered night - twilight).

☞ The colors in ECDIS and MAP Mode are independent of each other. The setting in MAP mode applies to all work surfaces.

MAP... → **SETTING...** → **NIGHT FILT**

6.4.7 Brightness - BRILLIANCE

The amount of information on the chart can overwhelm the eye. Therefore it is possible to darken or hide the background of the chart.

☞ The brightness of the chart can only be adjusted for ECDIS mode.

MAP... → SETTING... → BRILLANCE 100

6.4.8 Water depth - DEPTH SAFE

The depth information of water bodies is displayed in different colours on the chart.

How wide and how bright the fairway is displayed depends on the Depth Safe depth value set here in metres (2m to 10m). Up to the set depth value, the fairway has a different colour than shallow water. It makes sense to set the maximum draught of your own vessel plus a safety distance here.

The fairway shown is for guidance only. The depth information is taken from the charts and is not compared with the current water levels. The manufacturer accepts no liability in connection with incorrect information on the chart display.

MAP... → SETTING... → DEPTH SAFE 2.0

6.4.9 Chart orientation - ORIENT

The chart can be oriented north (NORTH) or ship ahead (HDT) of the GPS position sensor.

☞ The chart orientation can only be set in MAP mode. The setting refers to the active workspace. In ECDIS mode the chart is always oriented ship-forward.

☞ The chart position is set under MOVE.

MAP... → SETTING... → ORIENT NORTH

6.4.10 Move chart - MOVE

The position of the chart can be moved with the mouse or automatically tracked based on your own position.

If the value FREE is selected under MOVE, the charts are displayed north-oriented, independent of the GPS position sensor. In order to move the chart section, the cursor is used to the position which one would like to have in the chart centre. By pressing the left mouse button, the chart center is moved to the corresponding location.

If the value LOCK is selected under MOVE, the charts are automatically tracked. The own position (according to GPS position sensor) is always in the center of the map section.

☞ Move map can only be selected in map mode. The setting refers to the active workspace. In ECDIS mode the map is always bound to the ship position.

☞ The map orientation is set under ORIENT.

MAP... → SETTING... → MOVE FREE

6.5 Goto - GOTO

To efficiently jump to any location on the map, the goto function can be used in map mode. A position can be jumped to using water names and river kilometers or WGS84 coordinates.

☞ Goto is only available in map mode.

6.5.1 River kilometer - KM

After selecting the river, the selected river section (by river kilometre) can be jumped to.

MAP... → GOTO... → KM

6.5.2 Coordinates - GEO POS

After entering the longitude and latitude, this map position is jumped to.

MAP... → GOTO... → GEO POS

6.6 Chart entrys - PRIVATE DATA

Chart entries are used: to mark a certain area, to create an auxiliary line for navigation or to supplement charts. Chart entries refer to the current vessel position (GNSS).

6.6.1 Information - INFO

From a created chart entry the information can be displayed.

☞ If there are no card entries, the menu cannot be selected!

MAP... → **PRIVATE DATA...** → **INFO**

6.6.2 Enable - ENABLE

The large amount of information on the radar image can overwhelm the eye. Therefore it is possible to show or hide the chart entries.

MAP... → **PRIVATE DATA...** → **ENABLE**

6.6.3 Visibility - VISIBLE

If a chart entry is temporarily not needed, it is useful that it can be hidden.

☞ If there are no card entries, the menu cannot be selected!

☞ The visibility of chart entries can only be set in chart mode or with valid position in ECDIS mode.

MAP... → **PRIVATE DATA...** → **VISIBLE**

6.6.4 Create - NEW

A new chart entry is created.

☞ The number of points in a line is limited to 50!

☞ Chart entries can only be created in MAP mode or with a valid position in ECDIS mode.

MAP... → **PRIVATE DATA...** → **NEW**

6.6.5 Delete

Card entries that are no longer needed should be deleted.

☞ If there are no card entries, the menu cannot be selected!

MAP... → **PRIVATE DATA...** → **DELETE**

6.6.6 Delete all

All card entries are deleted!

☞ If there are no card entries, the menu cannot be selected!

MAP... → **PRIVATE DATA...** → **DELETE ALL**

6.7 Chart Administration - CHART ADMIN

6.7.1 Display installed chart cells - INSTALLED CELL

Installed chart cells can be displayed. This is used to check the up-to-dateness of individual cells.

When viewing in the RANGE range from 100km to 500km, all installed chart cells are displayed as rectangles. The INSTALLED CELL function opens an information window showing the update date of the selected chart cell.

MAP... → **CHART ADMIN...** → **INSTALLED CELL**

Select the desired chart cell with the mouse pointer, the name and update date are displayed in the display window.

6.7.2 Chart Import - IMPORT

Cards may only be imported when the radar is not in use!

☞ Charts can only be imported in MAP mode.

To keep the charts up to date, or to open up new areas, charts must be imported. There are three different chart formats that can be imported.

- Direct ENC (*.7cb, *.7cx, *.7ck)
- Encrypted Direct ENC (*.7cb.gpg)
- S-57 (*.000, *.001, ...) Only with S-57 import extension!

The cards are read from a USB stick. The data carrier must be formatted with a VFAT (DOS) file system. All cards from the USB stick are imported (also from subdirectories).

1 Charts can be obtained from the following sources, among others.

www.chartworld.com
www.tresco.eu
From your SWISS RADAR dealer

Table 4: Sources of charts

2 If necessary: Copy cards and keys to a USB stick.

3 Insert the USB stick into the USB slot on the computer unit. Select the desired directory, all cards in this directory will be imported.

MAP... → **CHART ADMIN...** → **IMPORT**

After the import is complete, it may take a few seconds before the chart is displayed.

6.7.3 Restore - RESTORE

If a new chart set is installed or deleted, a backup is created of the current status. The restore function makes it possible to access this backup.

MAP... → **CHART ADMIN...** → **RESTORE**

☞ After the restore is complete, it may take a few seconds before the chart is displayed.

6.7.4 Delete individual cards - DELETE CELL

Before deleting, a backup is created of the current chart state. The restore function makes it possible to switch back to this backup.

MAP... → **CHART ADMIN...** → **DELETE CELL**

6.7.5 Delete all cards - DELETE ALL

All installed cards will be deleted!

Before deleting, a backup is created of the current chart state. The restore function makes it possible to switch back to this backup.

MAP... → **CHART ADMIN...** → **DELETE ALL**

7 MAP mode

The Chart mode (MAP mode) was redesigned in 2021 and introduced together with the mouse control.

☞ MAP mode is only available in standby.

The entire display area of the screen is used for the display. The map mode has three independent work surfaces (desktops). At the bottom left of DESKTOP, you can see which of the three desktops is active. The MAP key is used to switch between the desktops.
The three work surfaces (desktops) can be freely configured. Changes are saved directly. When a desktop is called up again, it is displayed as it was last left.

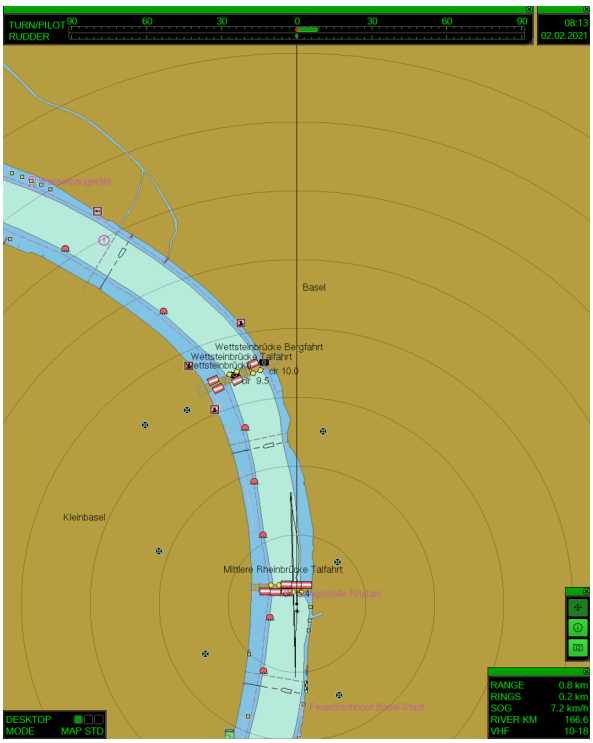


Figure 12: Desktop 1

Desktop 1 is preconfigured as follows:

VALUE: RANGE, RINGS, SOG, RIVER KM, VHF

LIST: none

WIDGET: CLOCK, PILOT, TOOLBAR

The chart runs course oriented. AIS objects are displayed. This pre-configuration displays only relevant information on a small range during the trip.

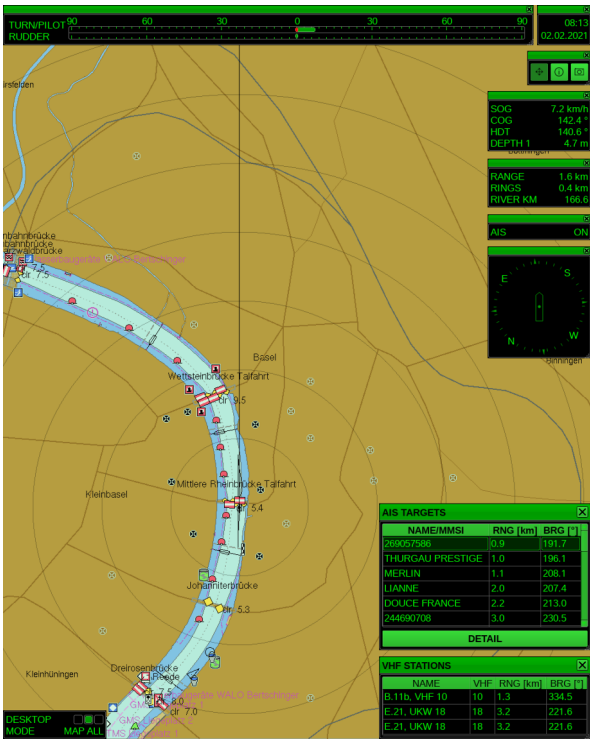


Figure *13:* Desktop 2

Desktop 2 is preconfigured as follows:

VALUE: SOG, COG, HDT, DEPTH1, RANGE, RINGS, RIVER KM,

LIST: AIS TARGETS, VHF STATIONS

WIDGET: CLOCK, PILOT, TOOLBAR, COMPASS

The chart runs course oriented. AIS objects are displayed. This pre-configuration displays detailed information on a medium range during navigation.

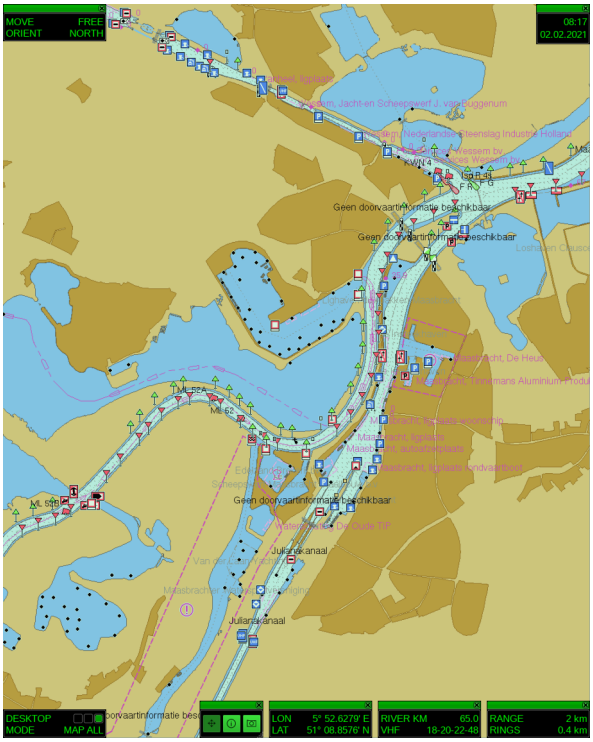


Figure *14:* Desktop 3

Desktop 3 is preconfigured as follows:

VALUE:	LON, LAT, RIVER KM, VHF, RANGE RINGS
LIST:	none
WIDGET:	CLOCK, TOOLBAR

The chart can be moved freely and does not run. AIS objects are displayed. This pre-configuration is used for voyage planning

☞ Pressing the MAP key on the control panel switches between the desktops.

Move the mouse pointer to the bottom left of the three fields next to DESKTOP, select and choose the desired desktop with the scroll wheel.

The following parameters are saved for each desktop:

• RANGE	Actual range	
• DISPLAY / RINGS	Distance of fixed measuring rings	
• DISPLAY / OFF CENTER X	Horizontal decentering of the image in +/- three steps	
• DISPLAY / OFF CENTER Y	Vertical decentering of the image in five steps	
• MAP ON/OFF	Chart on / off	
• MAP / INF DENSITY	Information density ofthe chart	
• MAP / TEXT	Chart text on / off	
• MAP / ORIENT	Chart orientation:	North Oriented (NORTH) / Compass Course (COURSE)
• MAP / MOVE	Positioning ofthe map:	Free (FREE) / according to own position (LOCK)
• LINE / SHAPE	Show the own ship outlilne	
• LINE / NAV-LINE L/R	Navigation lines parallel to the course of the own ship	
• LINE / EBL 2/3	Bearing Line 2 and 3	
• LINE / VRM 2/3	Variable measuring ring 2 and 3	
• AIS	Show of AIS objects	
• AIS / MIN DIST	Minimum distance of AIS objects	
• AIS LABEL	Show label of AIS objects	
• AIS NAME	Show names of AIS objects	
• AIS SOG	Show speed of AIS objects	

Different display windows can be shown per desktop. The position of these display windows can be freely selected. The information that can be displayed is divided into VALUE (values), LIST (lists) and WIDGET (predefined displays).

The following information can be displayed:

• ADD VALUE	AIS	window for switching the display of AIS objects on and off
	COG	display Course over ground
	SOG	displaySpeed over ground
	HDT	Anzeige ofthe orientation of the ship
	DEPTH	1/2Displaydepth indication 1 and 2
	RIVER KM	Anzeigedes aktuellen Flusskiometer
	VHF	display ofthe current radio channel
	LAT	AnzeigeLatitude
	LON	displayLongitude
	ETA	Expectedtime of arrival when route function is used
	RANGE	windowfor setting the distance range
	RINGS	windowfor switching on the distance measuring rings
	OFF CENTER X	Window for setting the horizontal decentration of the card
	OFF CENTER Y	Window for setting the vertical decentration of the card
	MOVE	window for setting the card position (FREE / LOCK)
	ORIENT	windowfor setting the map orientation (NORTH / COURSE)
• ADD LIST	AIS TARGET	Table of received AIS objects sorted by distance
	AIS RTA	Table ofrecommended arrival times (lock management)
	VHF STATUS	Table ofcurrent radio channels
• ADD WIDGET	CLOCK	Date and Time
	COMPASS	Digital compass
	PILOT	Turn indicator and autopilot scale
	TOOLBAR	Additional buttons: - Move card (if MOVE FREE is selected) - Get chart information or AIS (PICK REPORT / AIS REPORT) - Screenshot (PHOTO)

7.1 Horizontal decentration - OFFCENTER X

In map mode, charts can be decentered horizontally. The decentering applies per workspace.

DISPLAY... → **DESKTOP...** → **OFF-CENTER X**

7.2 Vertical decentering - OFFCENTER Y

In chart mode, chart s can be decentered horizontally. The decentering applies per workspace.

DISPLAY... → **DESKTOP...** → **OFF-CENTER Y**

7.3 Fixed range rings - RINGS

In MAP mode, as in radar mode, fixed range rings can be displayed.

☞ The variable knife rings, EBL and navigation lines are configured in the LINE... menu.

DISPLAY... → **DESKTOP...** → **RINGS**

7.4 Configuration of the individual desktops

The three work surfaces (desktops) can be freely configured. The individual windows can be moved, resized or closed at any time. Changes are saved directly. When a desktop is called up again, it is displayed as it was last left.

The following sections explain how to customize each desktop to suit your needs.

☞ The display can only be adjusted with a mouse.

☞ This device can save the user settings for up to 10 users. This allows each user to freely configure their three desktops in MAP mode. If a new user is created, the three desktops are configured according to the manufacturer's preconfiguration. For more information, see SYSTEM.../ USER...

☞ The three desktops can be reset to factory settings under SYSTEM... / USER.../LOAD.../DEFAULT to reset to the factory settings. Caution: All user settings are reset to the factory settings. For more information, see SYSTEM.../ USER...

☞ When you have configured all desktops, it is recommended that you save the device setting to its user. If the desktops have been changed by mistake, the saved settings can be restored.

7.4.1 Add value display - ADD VALUE

Widgets for displaying values are added to the current workspace. The values can be placed by "drag & drop". To do this, click on the desired value in the window with the left mouse button. Keeping the mouse button pressed, drag the value onto the workspace or into an existing window with values. By releasing the mouse button, the value is inserted at the position of the cursor. Value displays that have already been created can be adapted in the same style.

☞ By opening the menu, already created value displays can be edited.

☞ You can generate windows with multiple values by dragging the value into an existing window.

☞ With the ADD VALUE menu open, value displays can be placed in existing windows. In addition, values can be deleted from existing windows by dragging them out of the window.

DISPLAY... → **DESKTOP...** → **ADD VALUE**

7.4.2 Add value lists - ADD LIST

Widgets with predefined lists are added to the current workspace. The lists can be placed by "drag & drop". To do this, click on the desired list in the window with the left mouse button. Drag the list onto the workspace while holding down the mouse button. By releasing the mouse button, the list is inserted at the position of the cursor.

DISPLAY... → **DESKTOP...** → **ADD LIST**

7.4.3 Add Widget - ADD WIDGET

Widgets with predefined displays are added to the current workspace.

The following widgets can be displayed:

Date and time – CLOCK

Figure *15: CLOCK*

Digital compass display - COMPASS

Figure 16: COMPASS

Scale for rate of turn indicator, pilot and rudder - PILOT

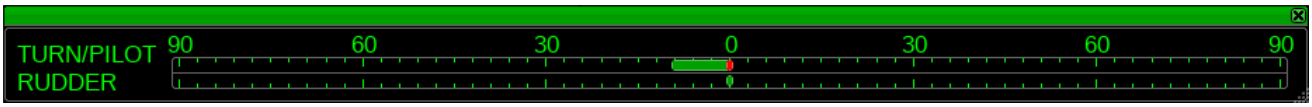


Figure 17: PILOT

Toolbar

By activating the information symbol of the toolbar, chart and AIS information can be requested. By clicking on AIS or map objects, a window with all available information is displayed.

The widgets can be placed by "drag & drop". To do this, click on the desired widget in the window with the left mouse button. Keeping the mouse button pressed, drag the widget onto the workspace. By releasing the mouse button, the widget is inserted at the position of the cursor.

DISPLAY... → **DESKTOP...** → **ADD WIDGET**

8 AIS

8.1 AIS object list - TARGET LIST

A list of all received AIS objects is displayed. The list is sorted in ascending order by distance. The selected object is highlighted graphically. A detailed report of this object can be displayed.

☞ If no AIS objects are present, the menu cannot be selected!

AIS... → **TARGET LIST**

8.2 Voyage related data - VOYAGE

All voyage-related (dynamic) data is entered under this menu item.

☞ To enter voyage related data, the AIS transponder must be correctly connected and switched on.

8.2.1 Navigational status - NAV

The navigational status indicates in which navigational state (e.g. underway, anchored, ...) the ship is currently located.

AIS... → **VOYAGE...** → **NAV UNDEF**

8.2.2 Destination - DEST

The destination is entered. The destination is saved and should be kept up to date.

☞ To enter a destination, the alphanumeric keyboard is required!

AIS... → **VOYAGE...** → **DEST**

8.2.3 Arrival time - ETA

The arrival time is sent periodically via AIS, in the voyage-related data. It serves as information for the authorities or other skippers.

AIS... → **VOYAGE...** → **ETA**

8.2.4 Resetting trip-related data - VOYAGE DEFAULT

The trip-related data is reset. The following table shows the values after the reset.

Menu item	**Default**
NAV	UNDEF
DESTINATION	blank
ETA	01.01 00:00

Table 5: Trip related data Default

AIS... → **VOYAGE...** → **DEFAULT**

8.2.5 Type of vessel or type of formation - VESSEL TYPE

The vessel type or the association type (Electronic Reporting International (ERI)) is entered.

AIS... → **INLAND VOYAGE...** → **VESSEL TYPE800**

8.2.6 Dangerous goods - HAZARD

If there are dangerous goods on board, the corresponding number of "Cones" must be set.

AIS... → INLAND VOYAGE... → HAZARD UNDEF

8.2.7 State of charge - LOADED

The state of charge of the vessel is set. The state is stored in the AIS transponder.

AIS... → INLAND VOYAGE... → LOADED UNDEF

8.2.8 Draught - DRAFT

The current draught of the vessel is entered.

AIS... → INLAND VOYAGE... → DRAFT ANDEF

8.2.9 Altitude of the vessel - AIR DRAFT

The current height of the highest point of the ship above water is entered.

AIS... → INLAND VOYAGE... → AIR DRAFT UNDEF

8.2.10 Tractor - TUGS

The number of tugs currently pulling or pushing the vessel is entered.

AIS... → INLAND VOYAGE... → TURGS ANDEF

8.2.11 Crew - CREW

The number of the current crew is entered.

AIS... → INLAND VOYAGE... → CREW UNDEF

8.2.12 Passengers - PASS

The number of passengers currently on board is entered.

AIS... → INLAND VOYAGE... → PASS ANDEF

8.2.13 Support staff - PERS

The number of current support personnel on board is entered.

AIS... → INLAND VOYAGE... → PERS UNDEF

8.2.14 Domestic Voyage Related Data Reset - VOYAGE DEFAULT

The voyage related data is reset. The following table shows the values after the reset.

Menu item	**Default**
VESSEL TYPE	8000
HAZARD	UNDEF
LOADED	UNDEF
DRAFT	UNDEF
AIR DRAFT	UNDEF
TUGS	UNDEF
CREW	UNDEF
PASS	UNDEF
PERS	UNDEF

Table 6: Domestic Travel Related Data Default

AIS... → **INLAND VOYAGE...** → **DEFAULT**

8.3 AIS Messages - MESSAGE

8.3.1 Received messages - INBOX

In the Inbox, the received Safety Related Messages (SRM) and Text messages (TXT) are displayed. The number of messages is limited to 10. If a new message arrives and the inbox is full, the oldest message is deleted.

☞ If an SRM is received, it must be acknowledged by reading the inbox!

AIS... → **MESSAGE...** → **INBOX**

8.3.2 Sent messages - OUTBOX

In OUTBOX the sent Safety Related Message (SRM) and Text Messages (TXT) are displayed. The number of messages is limited to 10. If a new message is sent and the maximum number is reached, the oldest message is deleted.

A message in the sent messages has a state. These are summarized in the following table:

State	Meaning
FAIL	Sending the message has failed. The message must be triggered again.
ACK	An addressed message was sent and received by the addressee.
PEND	The message has not been sent yet.
SENT	The message was broadcast.

Table 7: States of messages in OUTBOX

AIS... → **MESSAGE...** → **OUTBOX**

8.4 Safety-relevant messages - SRM

8.4.1 Compose SRM

SRMs can be sent specifically or to all recipients. First a recipient is selected, then the message is composed and sent.

An SRM may only be sent in an emergency! Otherwise a text message should be used.

AIS... → **MESSAGE...** → **SRM...** → **SEND NEW**

8.4.2 Send predefined SRM

In emergencies, it may be helpful to be able to send a predefined SRM. The device is delivered from the factory with predefined SRMs.

An SRM may only be sent in an emergency!

☞ If no predefined SRMs are available, the menu cannot be selected!

☞ Additional, user-defined SRMs can be defined.

AIS... → **MESSAGE...** → **SRM...** → **SEND PRE**

8.4.3 Write predefined SRM

Additional SRMs can be added to the predefined ones.

AIS... → MESSAGE... → SRM... → NEW PRE

8.4.4 Delete predefined SRM

All predefined SRMs can be deleted. On the one hand, this can improve the overview and messages that are not needed or incorrectly created can be deleted.

☞ If no predefined SRMs are available, the menu cannot be selected!

AIS... → MESSAGE... → SRM... → DEL PRE

8.5 Text News - TXT

8.5.1 Compose text message

Texts can be sent to specific recipients or broadcast. First a recipient is selected, then the message is composed and sent.

AIS... → MESSAGE... → TEXT... → SEND NEW

8.5.2 Send predefined text

In some situations it can be helpful to be able to send a predefined text. The device is delivered from the factory without predefined texts.

☞ Without predefined texts, the menu cannot be selected!

☞ User-defined texts can be defined.

AIS... → MESSAGE... → TEXT... → SEND PRE

8.5.3 Compose predefined text

Additional texts can be added to the predefined texts.

AIS... → MESSAGE... → TEXT... → NEW PRE

8.5.4 Delete predefined text

Predefined texts can be deleted. On the one hand, this can improve the overview and on the other hand, unneeded or incorrectly created texts can be deleted.

☞ Without predefined texts, the menu cannot be selected!

AIS... → MESSAGE... → TEXT... → DEL PRE

8.6 Recommended arrival time - RTA

The operators of locks, bridges, docks or similar structures can send a recommended time of arrival (RTA) to a vessel. The receipt of a new RTA is indicated in the status display by the message "NEW RTA". A detailed view of the arrival times can be obtained via the menu.

For the plain text display of names and radio channels additional files are required. Usually these are offered and installed with the Inland cards.

⇨ The files are imported via the IMPORT map function.

AIS... → RTA

8.7 Report of the own ship data - OSD REPORT

This report is used to get an overview of the own AIS vessel data. Thus it can be checked whether the static vessel data has been entered correctly.

AIS... → **OSD REPORT**

8.8 AIS settings

8.8.1 Display AIS objects - AIS

To realize a display without AIS objects, their display can be deactivated.

☞ The display in ECDIS mode and map mode are independent of each other. The setting in map mode refers to the active workspace.

AIS... → **SETTING...** → **AIS ON**

8.8.2 Minimum distance of AIS objects - MIN DIST

If there is a lot of traffic, e.g. in a harbour, it is possible that too many AIS objects make navigation difficult. Therefore, AIS objects around the vessel, on a circular area, can be hidden. If the set minimum distance is greater than zero, it is displayed on the screen at the bottom right (AIS).

☞ The minimum distance in ECDIS and map mode are independent of each other. The setting in map mode refers to the active workspace.

AIS... → **SETTING...** → **MIN DIST OFF**

8.8.3 Labelling - LABEL

To get a better overview, the complete labeling of AIS objects can be hidden.

☞ The labeling in ECDIS and map mode are independent of each other. The setting in map mode refers to the active workspace.

AIS... → **SETTING...** → **LABEL ON**

8.8.4 Name - NAME

The visibility of the name of AIS objects can be shown or hidden.

☞ The labeling in ECDIS and map mode are independent of each other. The setting in map mode refers to the active workspace.

AIS... → **SETTING...** → **NAME ON**

8.8.5 Speed over ground - SOG

The visibility of the speed of AIS objects can be switched on and off.

☞ The labeling in ECDIS and map mode are independent of each other. The setting in map mode refers to the active workspace.

AIS... → **SETTING...** → **SOG ON**

8.9 Display of AIS objects

☞ AIS objects are only displayed in ECDIS mode if a valid position with heading (compass sensor) is available.

8.9.1 Ship symbols

Ships are represented as rectangles, triangles or octagons. This depends on the information available. As a basic requirement, the position must be available.

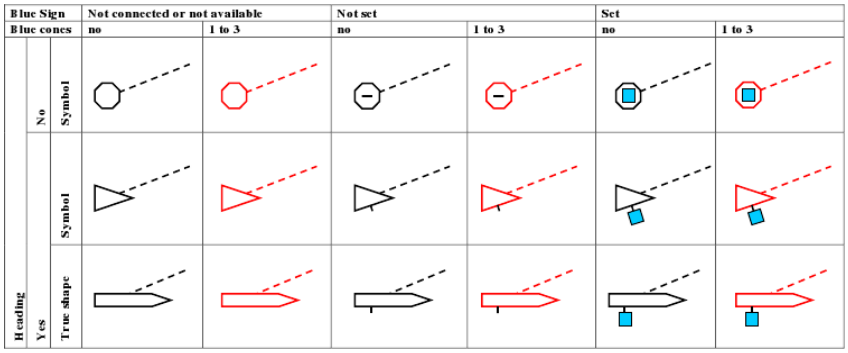


Figure 19: Visualization of a ship with Blue Flag and hazard symbols

If the heading and dimensions of a ship are known, it is displayed as a rectangle with a bow. If only the heading is known, it is displayed as a triangle. Otherwise the ship is displayed as an octagon.

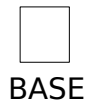
☞ If the rectangle (dimension) of a ship is smaller than the triangle, it is displayed as a triangle.

If a vessel transmits the status of the blue panel (Inland AIS), this is shown as a small dash (not set) or as a blue square (set). Ships with dangerous goods are displayed in red.

If a vessel is considered lost, i.e. it does not report within the prescribed reporting interval, it is shown dashed. If a vessel still does not report after twice the prescribed reporting interval, it is removed. The speed is always shown dashed.

8.9.2 base station

Figure 20: Base Station



A Base Station is shown as a square. If a Base Station is considered lost, it is shown as a dashed line. If a Base Station still does not report after twice the prescribed reporting interval, it is removed. For Base Stations on a range <= 3 km the text BASE is added.

8.9.3 SAR aircraft

Figure 21: SAR aircraft

A Search and Rescue (SAR) aircraft is shown as a cross. Course and speed over ground is shown as a dashed line. If a SAR is considered lost, it is shown as a dashed line. If a SAR still does not report after twice the prescribed reporting interval, it is removed. For objects on a range <= 3 km the text SAR is added.

8.9.4 Signal status

The presentation of the signals are defined in vtt101 (Vessel Tracking and Tracing Standard for Inland Navigation) in Annex C.

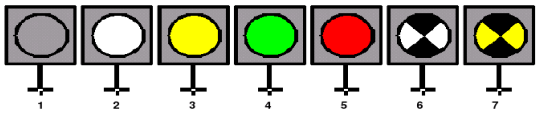


Figure 22: Signal status

The examples show signals with all possible states. The "flag" indicates the direction of impact. The white dot corresponds to the location of the signal (for locks, a signal is often shown for the inside and outside of the gate).

The status of a signal can be: No light (1), white (2), yellow (3), green (4), red (5), white flashing (6) and yellow flashing (7).

If a signal does not report after twice the prescribed reporting interval, it is removed.

8.9.5 Waveforms

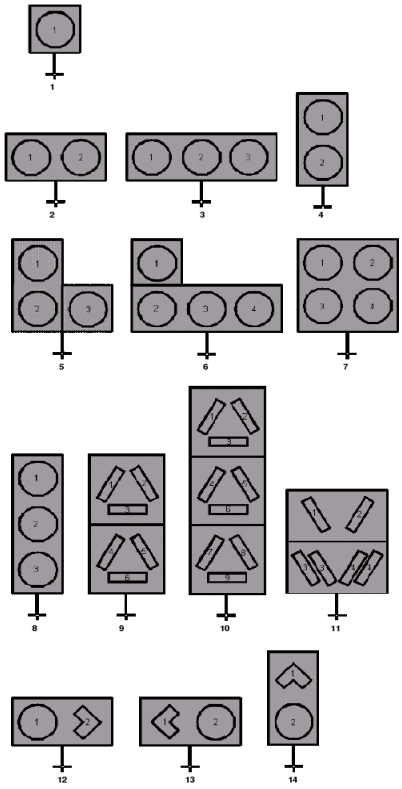


Figure 23: Signal shapes

8.9.6 EMMA Warning

The reception of an EMMA is temporarily shown as a warning in the status display.

Detailed information can be found in the news inbox.

The warnings are displayed as warning triangles with the corresponding symbol. An EMMA is displayed during the entire validity period.

	Non-specific EMMA warning
	Fire

	Thunderstorm
	Storm surge
	Fog
	Heat
	Cold
	Rain
	Snowfall and/or hail
	Storm

Table 8: EMMA signals

8.9.7 Navigation aids - Aid to Navigation

Figure 24: AtoN

An Aid To Navigation (ATON) is shown as a diamond. If an Aid To Navigation is considered lost, it is displayed as dashed. If an aid to navigation still does not report after twice the prescribed reporting interval, it is removed. For objects on a range <= 3 km the text ATON is added.

9 System

9.1 Alert

9.1.1 Current alarm - CURRENT

Only the current worst fault is shown in the status display. In the alarm report, all alarms, warnings and messages active on the system are also displayed with a more detailed description. If the system is working without a fault, the message SYSTEM OK is displayed.

SYSTEM... → **ALARM REPORT...** → **CURRENT**

9.1.2 Acknowledge - ACK

Alarm messages that are displayed in the system messages can be disturbing. Therefore, an alarm can be acknowledged. This suppresses the display in the system messages. Acknowledged alarms are still listed in the alarm list (Current alarm). They are marked by (ACK).

Alarm messages on the AIS transponder are also acknowledged by ACK.

Alarms may only be acknowledged if a service technician has been requested to repair the fault.

SYSTEM... → **ALARM REPORT...** → **ACK**

9.1.3 Show History - HISTORY

To get an overview of past alarms, the history can be displayed. The last 100 alarms are stored.

SYSTEM... → **ALARM REPORT...** → **HISTORY**

9.1.4 Delete History - CLR HISTORY

To remove all past alarms, the history can be deleted.

If the history is deleted, important information for system analysis can be lost.

SYSTEM... → **ALARM REPORT...** → **HISTORY**

9.2 System Report

To get an overview of the configuration and installed software on the device, the system report is used.

SYSTEM... → **SYSTEM REPORT**

9.2.1 PN2

Information of the main unit is displayed under this item.

- Device number
- Hardware ID
- Software version (SW version)
- Serial number
- Operating hours counter (Run counter)
- Startup counter
- Resource consumption (photo, video, ...)

9.2.2 Nav interface (NAV IF)

This item displays information about the navigation interface.

- Software version (SW version)

- Digital interfaces (Com Devices)

Equipped digital interfaces are represented as a binary number. This is read from the left (COM 1) to the right (0 = not present or 1 = present).

9.2.3 SPU interface (SPU IF)

This item displays information about the SPU interface.

- Software version (SW version)

9.2.4 ECDIS Kernel

This item displays information about the ECDIS kernel.

4 Software version (SW version)

9.2.5 Options

Under this item, enabled options are listed with the associated attributes. E.G. : Blackbox recording, ECDIS, extension for ferries, ...

⇨ Optional functions

9.3 Configuration Navigation display - NAV-CONFIG

9.3.1 Measuring range turn indicator - RED

Five different measuring ranges (±30, ±60, ±90, ±180 and ±300 °/min) can be set.

SYSTEM... → **NAV CONFIG...** → **RED +/- 90**

9.3.2 Navigation data - SOG, COG, HDT, ...

The lowest three fields in the display window (navigation display), at the top left of the screen, can be configured.

☞ A maximum of three values can be displayed!

The following items can be selected for a field:

- Speed over ground (SOG)
- Course over ground (COG)
- Orientation (HDT)
- Depth indication 1 (DEPTH 1)
- Depth indication 2 (DEPTH 2)
- River kilometers (RIVER KM)
- Radio frequency (VHF)

SYSTEM... → **NAV CONFIG...** → **FIELD 1 UNDEF**

9.4 System Time

9.4.1 Synchronization

The time on the system should be synchronized with accurate time sources. This is important so that in a navigation network (e.g. DORIS) all ships are underway with the same system time.

Synchronization can be performed to the following sources:

- System clock (RTC)
- Via GPS, GLONAS, ... received time (GNSS)
- Time received via AIS (AIS)

☞ In a system with multiple devices, the time source is adopted by all of them.

SYSTEM... → TIME... → SOURCE RTC

9.4.2 Time zone

In order to display the time in local time in reports, the time zone must be set.

The following time zones can be selected:

- Coordinated Universal Time (UTC)
- Western European Time (e.g. Great Britain, Ireland, Portugal, ...) (WET)
- Central European Time (e.g. Germany, France, Netherlands, Austria, Switzerland, ...) (CET)
- Eastern European Time (e.g. Estonia, Finland, Greece, ...) (EET)

☞ In a system with several devices, the time zone is adopted by all of them.

SYSTEM... → TIME... → ZONE CET

9.4.3 Manual input

The system clock can be operated autonomously. For this purpose, the time must be entered and corrected manually. The disadvantage is a not too accurate time.

☞ Time synchronization should be preferred to manual entry.

SYSTEM... → TIME... → SET

9.5 Ship configuration

It is possible to choose between several vessel configurations. The antenna and vessel parameters defined by the installer are set for the selected configuration. The vessel dimensions are automatically transferred to a connected AIS device.

☞ The SYSTEM/SHIP CONFIG menu only appears if several configurations are activated. Ask your installer about this. Up to 4 configurations can be activated.

☞ This way of changing the ship's outline is useful for configurations with multiple antennas.

SYSTEM... → SHIP CONFIG 1

9.6 Reset settings automatically - DEFAULT SET

The user can use this menu item to determine whether the device adopts the selected settings after a restart or starts in the basic settings.

By default DEFAULT SET is set to ON, the device starts with the following basic settings:

- RANGE = 16km
- Decentering OFFCENTER switched off
- GAIN at maximum
- TUNE to Automatic
- Near echo attenuation STC to minimum
- Rain reject FTC at minimum
- Display of AIS targets switched off
- Variable measuring ring VRM switched off
- Electronic bearing line EBL switched off

With DEFAULT SET OFF, these values are not reset when the device is restarted; the values last set are adopted.

☞ The manufacturer recommends starting the device in the default settings (DEFAULT SET ON).

SYSTEM... → DEFAULT SET

9.7 Save user settings - USER

Ten memory locations are available for saving user settings. If the user has configured the device according to his wishes, he can save this configuration under a name.

☞ The USER menu is only available in standby. No changes may be made to the USER menu while driving.

When restarting, the device always starts with the last settings used. The device does not start with the settings saved under USER. However, the user can reset the unit to the saved settings if required. This applies to all settings in MAP, Radar and ECDIS mode.

☞ DEFAULT SET must be set to OFF for the unit to start with all last used settings.

9.7.1 Load saved user settings - LOAD

A window with all saved user settings is displayed. The selected user setting is loaded.

The DEFAULT setting is always at the top of the list. This resets the device to the factory state. This affects all configurations that can be set by the user, even the three desktops of the MAP mode are reset to the factory setting.

Below the DEFAULT line, all user settings that have already been saved are displayed.

SYSTEM... → **USER...** → **LOAD**

9.7.2 Save system settings - SAVE

The current system settings are saved under the current user.

Successful saving is confirmed with SUCCESS. If NO SPACE LEFT appears, a stored user setting must be deleted before saving.

SYSTEM... → **USER...** → **SAVE**

9.7.3 Delete user settings - DELETE

User settings can be deleted.

SYSTEM... → **USER...** → **DELETE**

9.8 Mouse pointer speed - PTR SPEED

The acceleration of the mouse pointer can be adjusted. By increasing the value, the mouse pointer makes more way on the screen when the mouse moves quickly.

SYSTEM... → **PTR SPEED**

9.9 Service

The installer can access the service menu via this menu. The menu is password protected.

☞ Changes in the service menu may only be made by trained, authorized technicians!

SYSTEM... → **SERVICE**

10 Optional functions

All optionally available functions can be retrofitted to already installed Precision Navigator II devices. For further information please contact your SWISS RADAR Service Partner. To order these optional features, your SWISS RADAR service partner will need the serial number of the unit as well as the hardware ID of the system (found under SERVICE / SYSTEM REPORT / HARDWARE ID).

10.1 Blackbox Recording (screen video) [1]

10.1.1 View screen video - SHOW

When the device is switched on, the screen is continuously saved (screencast). The default look-back window is 24 hours. After switching on the device or after setting the clock, a new sequence (time period) is created.

The recorded screen videos can be viewed. To avoid confusion with the real radar image, they are displayed with about 3/4 of the original size on the screen.

☞ Screen videos can only be viewed in standby.

VIDEO... → **SHOW**

10.1.2 Screen video quality - QLTY

The quality at which a screen video is exported can be selected before exporting. The higher the quality is selected, the longer an export will take and the larger the amount of data will be.

☞ The selected quality has no influence on the quality with which screen videos are recorded.

VIDEO... → **QLTY LOW**

10.1.3 Export screen video - EXPORT

Excerpts from the recording can be exported as a movie to a USB stick. This can be viewed with any standard video player.

Insert a USB stick into a USB slot on the computer unit (not on the control unit!). As soon as a USB stick is detected, DISK PLUG-IN is displayed.

The folder structure can be edited via the keyboard. A directory is created with the Insert key. The name is entered and accepted with the Return key. The Del key is used to delete a directory and its files.

By pressing the Enter button the edited directory structure is written and the destination folder is taken over. A window for selecting the time period appears at the bottom right.

The desired time period is exported. Successful saving is confirmed with SUCCESS. Afterwards the USB stick can be removed.

☜ The export can take several hours, depending on the selected quality and length.

☞ A screen video can only be exported in standby.

VIDEO... → **EXPORT**

10.1.4 Create screen video archive - CREATE

To prevent a recorded time segment from being overwritten, it can be archived. The recorded time segment is stored as a copy in the archive. The memory of the archive is limited to 36 hours by default.

Select the desired recording file and then the time period to be archived. Successful saving is confirmed with SUCCESS.

☞ A screen video can only be archived in standby.

☞ If the designated memory for the archive is occupied, an older archive must be deleted first.

VIDEO... → **ARCHIVE...** → **CREATE**

1 Only with Blackbox Recording

10.1.5 Play screen video archive - SHOW

VIDEO... → **ARCHIVE...** → **SHOW**

Playing from the archive works in the same way as playing screen videos.

⇨ Play screen video

10.1.6 Export screen video archive - EXPORT

VIDEO... → **ARCHIVE...** → **EXPORT**

Exporting from the archive works in the same way as exporting screen videos. Successful saving is confirmed with SUCCESS.

⇨ Export screen video

10.1.7 Delete screen video archive - DELETE

If an archived time period is no longer required, or if storage space must be released for archiving, an archived time period can be deleted.

☞ A screen video can only be deleted from the archive in standby.

VIDEO... → **ARCHIVE...** → **DELETE**

10.1.8 Delete screen video complete archive - DELETE ALL

If the archived time segments are no longer required, or if storage space must be released for archiving, all archived time segments can be deleted.

☞ The screen videos can only be deleted from the archive in standby.

VIDEO... → **ARCHIVE...** → **DELETE ALL**

10.2 Track [2]

With the help of the Track option, your own coordinates (waypoints) are recorded at certain intervals. The recorded waypoints are connected to a line (track) and displayed on the map. The track shows the distance travelled by your own ship on the map.

☞ The track option can only be used with the ECDIS version and must be purchased separately.

10.2.1 Show current track - VISIBLE

In ECDIS mode, the current track is displayed with a line behind the vessel. To increase the clarity, this track display can be switched off. Waypoints continue to be recorded in the background even when the display is switched off.

☞ Tracks are only displayed in ECDIS and MAP mode

TRACK... → **VISIBLE YES**

10.2.2 Variable rear window - TRAIL

To avoid flooding the screen with a track that is too long, a variable backslide window can be set. The variable return window defines the length of the track line behind the own ship in hours.

TRACK... → **TRAIL1.0**

2 Only with option TRACK

10.2.3 Record track - RECORD

Waypoints are recorded continuously, but the length of a track is limited to 12 hours. After 12 hours, the oldest waypoints are deleted. If tracks are to be archived permanently, track recording must be started before the journey begins. Track recording is active when the menu item RECORD = YES. The recording runs parallel to the actual tracking function. By selecting YES a new track is created (which is terminated by NO). After a restart of the device an active recording will be continued. During recording, the recorded track is displayed in orange.

TRACK... → **RECORD NO**

Abbildung 25: Track with active recording position

10.2.4 Watch recorded tracks - SHOW

To get an overview of the recorded tracks, the individual tracks can be highlighted. The selected track is displayed as a thick orange line.

☞ The SHOW function is only available in MAP mode.

TRACK... → **SHOW**

10.2.5 Export tracks - EXPORT

The current and the recorded tracks can be exported to a USB stick. All tracks are exported to the file track_n.gpx (GPS Exchange Format), where n is selected so that existing files are not overwritten. The first track is the current track, the others are recorded tracks.

Exported tracks can be edited on the PC (e.g. with JOSM, Quantum GIS, or Garmin MapSource). To display the tracks with Google Earth, open the track file under Google Earth with "Open file".

Insert a USB stick into a USB slot on the computer unit (not on the control unit!). As soon as a USB stick is detected, DISK PLUG-IN is displayed.

The folder structure can be edited via the keyboard. A directory is created with the Insert key. The name is entered and accepted with the Return key. The Del key is used to delete a directory and its files.

By pressing the Enter button the edited directory structure is written and the destination folder is taken over. An information window for exporting appears at the bottom right. Successful saving is confirmed with SUCCESS.

☞ Tracks can only be exported in MAP mode.

TRACK... → **EXPORT**

10.2.6 Delete track - DELETE

With DELETE individual tracks can be deleted.

☞ Tracks can only be deleted in MAP mode.

TRACK... → **DELETE**

10.2.7 Delete all tracks - DELETE ALL

With DELETE ALL all tracks are deleted.

☞ Tracks can only be deleted in MAP mode.

TRACK... → **DELETE ALL**

10.2.8 Create Route - CREATE ROUTE [3]

A track can be converted directly into a route file. The converted track is automatically added to the routes. A name should be given to the new route. The number of route points is optimized; i.e. points that lie on a straight line are removed.

☞ Routes can only be created in MAP mode.

TRACK... → **CREATE ROUTE**

10.2.9 Revise tracks, external routes conversion

There are several ways to rework exported tracks on the PC. One of them is with JOSM from the Openstreetmap project (http://josm.openstreetmap.de/). With it, tracks can be comfortably adapted and supplemented.

The so edited data can be imported afterwards, e.g. after a conversion with gpsbabel (http://www.gpsbabel.org/) to routes.

10.3 Route [4]

Routes simplify navigation on larger bodies of water. They help to keep to the course. Routes consist of the following line, harbour symbols (bollards) and horn points.

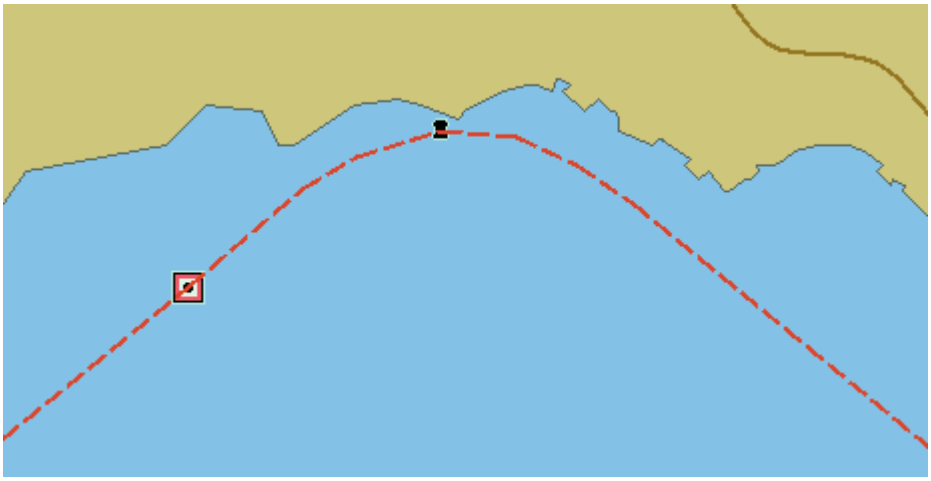


Figure 26: Route with port and horn point

☞ The route function can only be used with the ECDIS version and must be purchased separately.

10.3.1 Import route - IMPORT

Route files in GPS Exchange format can be imported directly. Not arbitrary file names can be used for the route files.

☞ Only route files whose file name is exactly route.gpx or route_n.gpx, where 'n' is a number, can be imported. Examples: route.gpx, route_0.gpx, route_1.gpx, route_95.gpx.

If there are several route files in the selected folder, the file with the largest number (n) is imported. The maximum number of waypoints is limited to 50'000. For example, 50 routes with 1000 waypoints each or 250 with 200 waypoints each can be imported.

☞ Routes can also be created from tracks. This requires the track option in combination with the route function.

The display symbol <residence> is interpreted as a bollard and <horn> as a sound signal.

ROUTE... → **IMPORT**

3 Only with ROUTE and TRACK option
4 Only with ROUTE option

10.3.2 Export route - EXPORT

The routes can be exported to a USB stick. All routes are exported to the file route_n.gpx (GPS Exchange Format), where n is selected so that existing files are not overwritten.

☞ Exported routes can be imported again.

Bollards are exported as display symbol <residence> and sound signal as <horn>.

Insert a USB flash drive into a slot on the computer unit. Use the alphanumeric keypad to edit the folder structure. Use the Insert key to create a directory. The name is entered and accepted with the Return key. The Del key is used to delete a directory, including its files. Pressing the Enter key writes the edited directory structure and accepts the destination folder. An information window for exporting appears at the bottom right.

ROUTE... → **EXPORT**

10.3.3 Select route - SELECT

After the import, the first route is displayed. The desired route can be selected. The selected route is displayed even if no maps are installed.

☞ Routes are only displayed if the function is activated (VISIBLE)

ROUTE... → **SELECT**

10.3.4 Show route - VISIBLE

The route function can be switched off and the clarity increased. The selected route is retained.

ROUTE... → **VISIBLE**

10.3.5 Route Editor - EDITOR

The editor enables the comfortable creation, editing and deletion of routes. The attributes of routes are set via a table.

ROUTE... → **EDITOR**

☞ The editor can only be activated in map mode.

☞ Routes imported via USB stick cannot be edited or deleted with the editor.

Create

Routes are created by selecting the line tool from the editor toolbox. A route is completed by clicking twice at the same position. Afterwards, the name, bollards and horn points can be set or the geometry adjusted with Edit.

☞ The number of points on a route is limited to 5000!

Edit

Routes are edited by selecting the edit tool. Routes are moved by drag&drop. The geometry of routes is adjusted by dragging and dropping corner points. If a route is selected by mouse click, its attributes are listed in the editor table. An edited attribute is adopted.

Delete

If the delete tool is selected, routes or corner points of routes are deleted by clicking on them.

Store

As soon as a change is made to a route, the Save tool is activated. All changes are saved by clicking on the Save tool.

10.3.6 Create a Quick-Route - QUICK ROUTE

Quick Route enables the efficient creation of an ad hoc route. Selecting QUICK ROUTE starts the creation of a route directly. When the route is completed, it is given the name "Quick Route" and a port symbol (bollard) is set at the last point. It becomes the selected route. An already existing Quick Route is overwritten.

Thus, as soon as the vessel is on the route, the ETA to the bollard is calculated and displayed (if the display is configured this way).

☞ If a Quick Route is to be retained, it must be renamed.

ROUTE... → **QUICK ROUTE**

10.3.7 Delete all routes - DELETE ALL

All routes are deleted.

☞ Routes can only be deleted in MAP mode.

ROUTE... → **DELETE ALL**

10.3.8 Course deviation - DEVIATION

The maximum course deviation is set. If the distance to the selected route is more than the course deviation, an alarm is triggered.

☞ The course deviation can only be set in MAP and ECDIS mode.

ROUTE... → **DEVIATION 100m**

10.3.9 Audible alarm - BEEP

It is defined whether an acoustic warning is to be given in the event of a course deviation. The acoustic alarm is activated after each restart.

☞ The audible alarm can only be set in MAP and ECDIS mode.

ROUTE... → **BEEP ENABLED**uten

The deviation of routes can be estimated by eye. If you want to move in a given area, the navigation lines are suitable as a boundary. Navigation lines

10.3.10 Arrival time - ETA [5]

If a route is being navigated, the arrival time (ETA) of the next station can be displayed. To do this, ETA must be selected in the navigation display Navigation data.

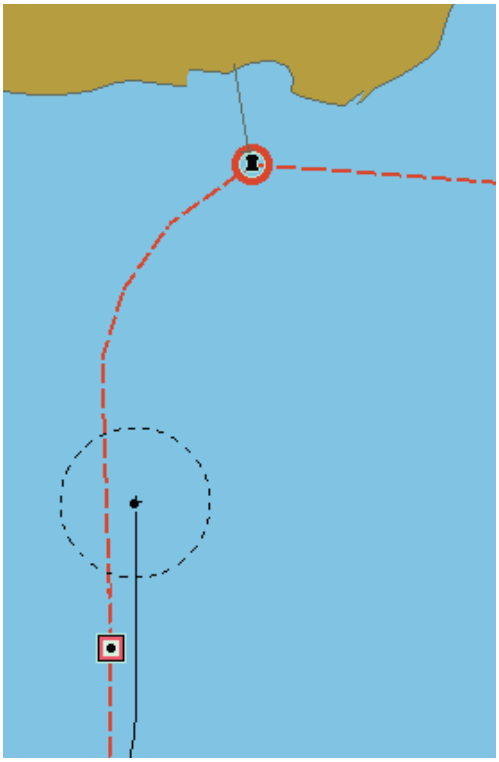


Figure 27: ETA with selected station

If a new route is selected, the arrival time at the next station is calculated immediately, provided that the own ship position is on the route. Otherwise, the position on the route (and thus the arrival time) is determined when navigating on it. As soon as you leave the route, the arrival time is calculated from the direct distance to the current station.

The station from which the arrival time is displayed is marked on the map with a circle. When you reach the marked station, the arrival time of the next station is displayed (and also marked).

If you stop at one station, the arrival time at the next station is displayed, but always added to the current time.

5 Only with LAKE option

10.4 Automatic track guidance, argoTrackPilot

The argoTrackPilot steers a ship along a given route. In doing so, it tries to keep the distance to the route as small as possible. For this purpose, the argoTrackPilot calculates the necessary control commands for the autopilot. The autopilot ensures that the specified control commands are implemented accordingly.

The argoTrackPilot has an interface for data exchange with the SWISS RADAR PN II. The argoTrackPilot guidelines can be displayed in navigation mode (ECDIS Mode) and information mode (MAP Mode).

The alarms of the argoTrackPilot are integrated into the alerting system of the radar unit.

The Precision Navigator II has its own independent route management by integrating the two SWISS RADAR options Route and Track. With the Track option, tracks can be recorded. These are then edited in the route editor and transmitted to the argoTrackPilot. The argoTrackPilot generates the guidelines for the automatic track guidance.

The argoTrackPilot also has a route management function. However, routes of the argoTrackPilot cannot be stored on the SWISS RADAR device.

In navigation mode (ECDIS mode), the argoTrackPilot guidelines can be displayed. For the use of the route management or the fading in the widget with target and actual values the information mode (MAP mode) has to be used.

☞ The TrackPilot function can only be used with the ECDIS version and must be purchased additionally.

☞ The argoTrackPilot guidelines can be displayed in navigation and information mode.

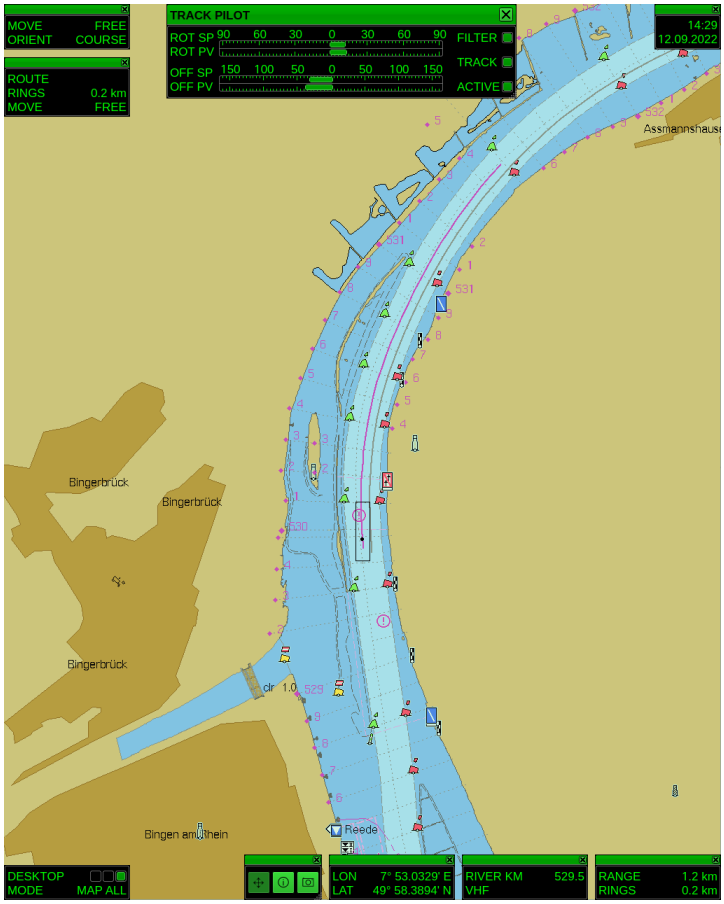


Figure 28: Guidelines and TrackPilot widget in MAP mode (information mode)

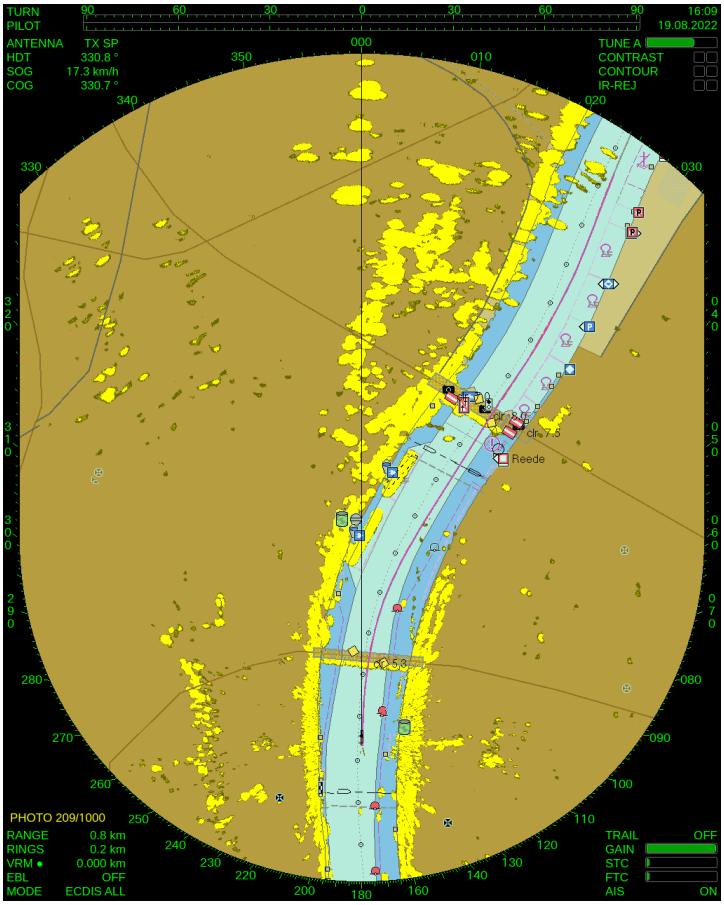


Figure 29: Guidelines in ECDIS mode (navigation mode)

10.4.1 Widget

Rate of turn (target and actual value), deviation from the route (target and actual value) and the status from the TrackPilot, are displayed with the TRACK PILOT widget.

⇨ Map mode (configuration of the individual desktops, display)

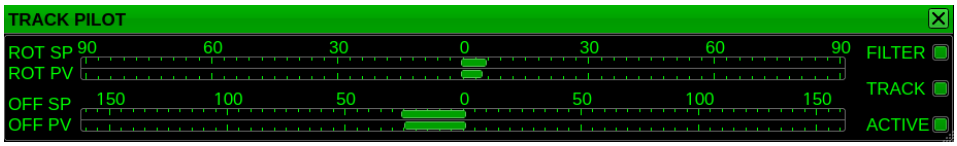


Figure *30: TRACK PILOT Widget*

ROT SP	Specified rate of turn in degrees per minute
ROT PV	Measured rate of turn in degrees per minute
OFF SP	Given distance to the route in metres
OFF PV	Measured distance to route in metres
FILTER	Measured values are accurate enough to estimate a precise position
TRACK	The selected route meets the minimum TrackPilot requirements
ACTIVE	TrackPilot is active and using the selected route

10.4.2 Guidinglines

If a route is active on the argoTrackPilot, the currently used segment and the calculated path are shown on the map.

⇨ Operating Instructions argoTrackPilot (Guidinglines)

10.4.3 Importing Routes

Files with argoTracks from Argonics (*.trk) can be imported directly as routes.

⇨ Route (Import route)

10.4.4 Selecting a Route

By selecting a route, the argoTrackPilot option automatically transfers the route to the argoTrackPilot. If the transfer is successful, SUCCESS is displayed.

⇨ Route (Select route)

10.4.5 Alarms

Warnings and alarms from the argoTrackPilot are transferred to the alarm system and displayed as alarms.

⇨ Alarms and warnings

⇨ Operating Instructions argoTrackPilot (Warnings, Alarms)

10.5 Man overboard (MOB) [6]

On the SWISS RADAR PN II with MOB function, there is an additional button on the control unit labelled MOB. This is located to the right of the double rotary wheel.

If an object or person goes overboard, the current position can be saved by pressing the MOB button and a marker (life ring) appears on the screen. This marker is displayed in ECDIS and MAP mode at the set position.

To communicate the position of set markers to an operations center, the coordinates and time can be displayed.

If set markers are no longer needed, they can be deleted. If 10 markers are already set, the oldest one is deleted.

☞ The MOB function can only be used with the ECDIS version and must be purchased separately.

10.5.1 Set marker (MOB key)

The MOB button can be used to set a marker. Pressing the MOB button immediately sets and stores a marker at the current GNSS position.

10.5.2 Set marker by cursor (menu) - SET

With the help of this function, the coordinates of other objects to be detected on the radar image can be read out and saved. If the function is activated via the menu, a cursor appears. This is moved to the desired position with the double rotary wheel and the marker is set by pressing the Enter button. The coordinates of the cursor position are continuously displayed.

MOB... → **SET**

☞ "Set a marker at the current position" is achieved by pressing the Enter button twice after navigating to SET.

10.5.3 Show marker

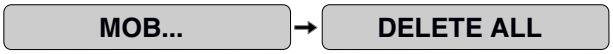
A tabular overview of all markers with position and time is displayed.

MOB... → **SHOW**

10.5.4 Delete all markers - DELETE ALL

All markers are deleted.

6 Only with MOB option


MOB...
DELETE ALL

11 Appendix A - Menu

Menu tree with link to the corresponding chapters.

☞ This is the complete menu tree. Depending on the operation mode and unlocked options, the entries vary (are individual items visible or not)!

Menu item		MAP	RADAR	ECDIS
MAP...		x		x
VHF STATION	⇨ card (VHF station)	x		x
PICK REPORT	⇨ card (pick report)	x		x
GOTO...		x		
KM	⇨ Map (goto, river kilometers)	x		
GEO POS	⇨ map (goto, coordinates)	x		
PRIVATE DATA...		x		x
INFO	⇨ map (Info)	x		x
ENABLE	⇨ card (card entry, on/off)	x		x
VISIBLE	⇨ map (map entry, show/hide)	x		x
NEW	⇨ map (map entry, absolute lines)	x		x
DELETE	⇨ card (card entry, deletion)	x		x
DELETE ALL	⇨ card (card entry, delete all)	x		x
CHART ADMIN...		x		
INSTALLED CELL	⇨ card (administration, Installed cells)	x		
IMPORT	⇨ card (administration, import)	x		
RESTORE	⇨ card (administration, recovery)	x		
DELETE CELL	⇨ card (administration, delete)	x		
DELETE ALL	⇨ card (administration, delete)	x		
SETTING...		x		x
DESKTOP 1..3		x		
MAP (ON/OFF)		x		
INF DENSITY	⇨ map (settings, information density)	x		
TEXT	⇨ card (settings, Text)	x		
ORIENT	⇨ map (settings, orientation)	x		
MOVE	⇨ card (settings, move)	x		
INF DENSITY	⇨ map (settings, information density)			x
TEXT	⇨ Card (settings, text)			x
TEXT SIZE	⇨ card (settings, text size)	x		x
DAY	⇨ card (settings, tag colors)	x		x
NIGHT	⇨ card (settings, night colours)	x		x
BRILLIANCE	⇨ card (settings, brightness)			x
DEPTH SAFE	⇨ card (settings, water depth)	x		x
AIS...		x	x	x
TARGET LIST	⇨ AIS (report of AIS objects)	x	x	x
VOYAGE...		x	x	x

NAV	⇨ AIS (voyage related data, navigational status)	x	x	x
DESTINATION	⇨ AIS (trip related data, destination)	x	x	x
ETA	⇨ AIS (travel related data, arrival time)	x	x	x
DEFAULT	⇨ AIS (Trip related data, reset)	x	x	x
INLAND VOYAGE...		x	x	x
VESSEL TYPE	⇨ AIS (voyage related data, vessel type)	x	x	x
HAZARD	⇨ AIS (travel related data, dangerous goods)	x	x	x
LOADED	⇨ AIS (trip related data, loading status)	x	x	x
DRAFT	⇨ AIS (voyage related data, draught)	x	x	x
AIR DRAFT	⇨ AIS (voyage related data, altitude of the vessel)	x	x	x
TUGS	⇨ AIS (travel related data, tugs)	x	x	x
CREW	⇨ AIS (voyage related data, crew)	x	x	x
PASS	⇨ AIS (travel related data, passengers)	x	x	x
PERS	⇨ AIS (travel-related data, support staff)	x	x	x
DEFAULT	⇨ AIS (inland voyage related data, reset)	x	x	x
MESSAGE...		x	x	x
INBOX	⇨ AIS (AIS messages, received messages)	x	x	x
SRM...		x	x	x
SEND PRE	⇨ AIS (AIS messages, send predefined SRM)	x	x	x
SEND NEW	⇨ AIS (write AIS messages, SRM)	x	x	x
NEW PRE	⇨ AIS (AIS messages, compose predefined SRM)	x	x	x
DEL PRE	⇨ AIS (AIS messages, delete predefined SRM)	x	x	x
TEXT...		x	x	x
SEND PRE	⇨ AIS (AIS messages, send predefined text)	x	x	x
SEND NEW	⇨ AIS (AIS messages, compose text)	x	x	x
NEW PRE	⇨ AIS (AIS messages, write predefined text)	x	x	x
DEL PRE	⇨ AIS (AIS messages, delete predefined text)	x	x	x
OUTBOX	⇨ AIS (AIS messages, Sent messages)	x	x	x
RTA	⇨ AIS (Recommended time of arrival)	x	x	x
OSD REPORT	⇨ AIS (report of own ship data)	x	x	x
SETTING...		x	x	x
DESKTOP 1..3		x		
AIS (ON/OFF)		x	x	x
MIN DIST	⇨ AIS (minimum distance from AIS objects)	x	x	x
LABEL	⇨ AIS (display AIS objects)	x	x	x
NAME	⇨ AIS (display AIS objects)	x	x	x
SOG	⇨ AIS (display AIS objects)	x	x	x
MEASURE Basic function (measurement)		x	x	x
LINE		x	x	x
SHAPE...		x	x	x
BRILLIANCE	⇨ navigation lines (ship outline, brightness)		x	x
ADD ENABLE	⇨ navigation lines (ship outline, on/off)	x	x	x
ADD BOW	⇨ navigation lines (ship outline, bow)	x	x	x

ADD STERN	⇨ navigation lines (ship outline, stern)	x	x	x
ADD PORT	⇨ navigation lines (ship's outline, port)	x	x	x
ADD STAR	⇨ navigation lines (ship's outline, starboard)	x	x	x
DEFAULT	⇨ navigation lines (ship outline, reset)	x	x	x
DESKTOP 1..3		x		
SHAPE...		x		
BRILLIANCE	⇨ navigation lines (ship outline, brightness)	x		
NAV-LINE L...		x	x	x
DIST	⇨ navigation lines (nav lines, distance)	x	x	x
VISIBLE	⇨ navigation lines (nav lines, visibility)	x	x	x
NAV-LINE R...		x	x	x
DIST	⇨ navigation lines (nav lines, distance)	x	x	x
VISIBLE	⇨ navigation lines (nav lines, visibility)	x	x	x
EBL...		x	x	x
EBL 2	⇨ navigation lines (EBL 2 and 3)	x	x	x
VISBLE 2	⇨ navigation lines (visibility of EBL 2 and 3)	x	x	x
EBL 3	⇨ navigation lines (EBL 2 and 3)	x	x	x
VISBLE 3	⇨ navigation lines (visibility of EBL 2 and 3)	x	x	x
VRM...		x	x	x
VRM 2	⇨ navigation lines (VRM 2 and 3)	x	x	x
VISBLE 2	⇨ navigation lines (visibility of VRM 2 and 3)	x	x	x
VRM 3	⇨ navigation lines (VRM 2 and 3)	x	x	x
VISBLE 3	⇨ navigation lines (visibility of VRM 2 and 3)	x	x	x
POS PREDICT	⇨ position prediction	x	x	x
TIME	⇨ forecast time, length of the lines	x	x	x
DAMP	⇨ damping value for the calculation of the position prediction	x	x	x
FERRY[7]		x	x	x
PHOTO...		x	x	x
SHOT	⇨ recording (screenshot)	x	x	x
SHOW	⇨ recording (screenshot)	x	x	x
EXPORT	⇨ recording (screenshot)	x	x	x
DELETE ALL	⇨ recording (screenshot)	x	x	x
VIDEO... [8]		x	x	x
SHOW	⇨ recording (screen video)	x	x	x
QLTY	⇨ recording (screen video)	x	x	x
EXPORT	⇨ recording (screen video)	x	x	x
ARCHIVE	⇨ recording (screen video)	x	x	x
CREATE	⇨ recording (screen video)	x	x	x
SHOW	⇨ recording (screen video)	x	x	x
EXPORT	⇨ recording (screen video)	x	x	x
DELETE	⇨ recording (screen video)	x	x	x

7 Only with option FERRY
8 Only with Blackbox Recording option (VIDEO)

DELETE ALL	⇨ recording (screen video)	x	x	x
ROUTE... [9]		x		x
SELECT	⇨ route	x		x
QUICK ROUTE	⇨ route (create provisional route)	x		x
VISIBLE	⇨ route (show route)	x		x
IMPORT	⇨ route (import route)	x		
DELETE ALL	⇨ route (delete all routes)	x		
EDITOR	⇨ route (create, edit and ddelete routes)	x		
EXPORT	⇨ route (export route)	x		
DEVIATION	⇨ route (course deviation)	x		x
BEEP	⇨ route (audible alarm)	x		x
TRACK... [10]		x		
RECORD	⇨ track (record track)	x		x
VISIBLE	⇨ track (show track)	x		x
SHOW	⇨ track (highlight track)	x		
DELETE	⇨ track (delete Track)	x		
DELETE ALL	⇨ track	x		
TRAIL	⇨ track (variable rear view window)	x		x
CREATE ROUTE	⇨ track (create route)	x		
EXPORT	⇨ track (export tracks)	x		
MOB... [11]		x		x
SET	⇨ Mob (set marker)	x		x
SHOW	⇨ Mob (show marker)	x		x
DELETE ALL	⇨ Mob (delete all markers)	x		x
DISPLAY		x	x	x
DESKTOP 1..3		x		
OFF-CENTER	⇨ basic function (display, decentering)		x	x
OFF-CENTER X	⇨ basic function (display, decentering)	x		
OFF-CENTER Y	⇨ basic function (display, decentering)	x		
RINGS	⇨ basic function (display, fixed distance measuring rings)	x	x	x
ADD VALUE	⇨ basic function (configurable display, values display)	x		
ADD LIST		x		
ADD WIDGET		x		
COLOR	⇨ basic function (display, color scheme)	x	x	x
DAY	⇨ basic function (display, colour palette)	x	x	x
NIGHT	⇨ basic function (display, colour palette)	x	x	x
TRAIL	⇨ basic function (display, afterglow track)		x	x
TRACK PLT...[12]	⇨ automatic track guidance, argoTrackPilot	x		x
GL VISIBLE	⇨ automatic path guidance (Guiding Line Visible, show))	x		x
ALARM ⇨ automatic web guidance (alarm messages on/off)		x		x

9 Only with ROUTE option
10 Only with option TRACK
11 Only with MOB option
12 Nur mit Option TRACKPLT

SYSTEM...		x	x	x
ALARM REPORT...		x	x	x
CURRENT	⇨ system (alarm, current alarm)	x	x	x
ACK	⇨ system (alarm, acknowledge)	x	x	x
HISTORY	⇨ system (alarm, display history)	x	x	x
CLR HISTORY	⇨ system (alarm, clear history)	x	x	x
SYSTEM REPORT	⇨ system	x	x	x
NAV-CONFIG...			x	x
ROT	⇨ system (navigation display, turn indicator measuring range)		x	x
FIELD 1	⇨ system (navigation display, navigation data)		x	x
FIELD 2	⇨ system (navigation display, navigation data)		x	x
FIELD 3	⇨ system (navigation display, navigation data)		x	x
TIME...		x	x	x
SOURCE	⇨ system (time, synchronization)	x	x	x
ZONE	⇨ system (time, time zone)	x	x	x
SET	⇨ system (time, manual input)	x	x	x
USER...		x	x	x
LOAD	⇨ system (load user settings)	x	x	x
SAVE	⇨ system (save user settings)	x	x	x
DELETE	⇨ system (delete user settings)	x	x	x
SHIP CONFIG	⇨ system (ship configuration)		x	x
PTR SPEED	⇨ basic function (display, pointer speed)	x	x	x
DEFAULT SET	⇨ system (reset settings automatically)		x	x
SERVICE	⇨ installation ianual	x	x	x

12 Appendix B - Map Producers

The names of ENC cards are 8 characters long. Characters 1+2 contain the map producer (abbreviation). The following table contains the most important European map producers of digital maps. The data is taken from http://www.openecdis.org/ (Producer Codes).

Code	Number	Producer
BE	30	Afdeling Kust,Hydrografie Oostende-Antwerpen, Belgium
B1	31	Dienst der Kust Hydrografie, Belgium
HR	80	Hrvatski Hidrografski Institut, Croatia
DK	110	Kort-Og Matrikelstyrelsen, Denmark
D1	111	Farvandsvaesenet, Denmark
EG	140	Shobat al Misaha al Baharia, Egypt
FI	160	Finnish Maritime Administration, Finland
FR	170	Service Hydrographique et Oceanographique de la Marine, France
DE	180	Bundesamt fuer Seeschiffahrt und Hydrographie, Germany
GR	190	Hellenic Navy Hydrographic Service, Greece
IT	250	Istituto Idrografico della Marina, Italy
NL	310	Dienst de Hydrografie Koninklijke Marine, Netherlands
NO	340	Norwegian Hydrographic Service, Norway
N1	341	Electronic Chart Centre, Norway
N2	342	Norwegian Defence, Norway
PL	400	Biuro Hydrograficzne, Poland
PT	410	Instituto Hidrografico, Portugal
ES	450	Instituto Hidrografico de la Marina, Spain
SE	480	Sjöfartsverket, Swedish Maritime Administration, Sweden
TR	520	Seyir, Hidrografi ve Osinografi Dairesi Baskanligi, Department of Navigation, Hydrography and Oceanography, Turkey
GB	540	United Kingdom Hydrographic Office, UK
AT	645	Supreme Shipping Authority of the Federal Ministry of Sciences and Transport, Austria
BG	720	Hidrografska Sluzhba Pri Ministerstvo Na Otbranata, Bulgaria
EE	870	Estonian Maritime Administration, Estonia
IE	990	Maritime Safety Directorate, Ireland
LT	1100	Klaipeda State Seaport Authority, Lighthouses and Hydrography Service, Lithuania
QQ	1640	Digital Geographic Information Working Group
QR	1650	European Communities Commission
QS	1660	European Harbour Masters Association
QU	1680	Federation Internationale des Geometres
PM	2020	PRIMAR - Stavanger
1B	0	UKHO test and sample datasets
1D	7453	Amt fuer Geoinformationswesen der Bundeswehr
1F	7967	Force Technology, Danish Maritime Institute
1H	7969	Vituki Water Resources Research Centre Hungary
1P	7977	Port Of London
1R	7979	Rijkswaterstaat
1S	7980	Austrian Supreme Shippig Authority

1T	7981	UKHO - private production
1W	7984	Wasser- und Schiffahrtsverwaltung des Bundes - Wasser- und Schiffahrtsdirektion Süd-West
2B	11051	Bundesanstalt für Wasserbau - Karlsruhe
2D	11565	SVP, s.p., OZ Bratislava
2E	11822	Euronav Ltd UK
2H	12055	CMER, Zagreb
2I	12056	Innovative Navigation GmbH
2M	12060	MARIN (Maritime Research Institute Netherlands)
2N	12061	Hochschule Bremen (Nautik)
2P	12063	PLOVPUT Beograd
2R	12065	Port of Rotterdam
2T	12093	Transas Marine
2W	12096	via donau - Oesterreichische Wasserstrassen-Gesellschaft mbH
3B	15163	AEMDR, Rousse, Bulgaria
3T	16205	Tresco Navigation Systems
3V	16207	The Volga-Don State Waterways And Navigation Basin Board
4C	19532	Rheinschifffahrtsdirektion (RSD) Basel
5C	23644	CRUP d.o.o., Croatia
7C	31868	SevenCs AG & Co KG
9H	40865	Hamburg Port Authority
9T	40877	Tresco Engineering bvba
0_	65534	unknown producer

Table 9: Chart producers

13 Appendix C - Alarms and Warnings

The alarms, warnings and messages are summarized in the following table, prioritized by importance.

	Status display	Description
	OVER TEMP	The maximum operating temperature has been exceeded. • The ambient temperature at the position of the computer unit is too high. • A fan has failed or is dirty => Check fan, provide cooler air for the computer unit
	ANTENNA SVC LOST	The service that provides and controls the radar data cannot be reached. • Network connection interrupted • Device providing the radar signal is not operational
	NAVGW SVC LOST	The service that provides and controls the navigation data cannot be reached. • Network connection interrupted • Device that provides the navigation data is not operational
	INPUT SVC LOST	The service that provides and controls the input devices cannot be reached. • Network connection interrupted • Device that provides the input data is not ready for operation.
	SPU LOST	The connection to the SPU card cannot be established. • Cable defective • SPU card defective => Switch off the device completely and disconnect it from the power supply. Restart after 30 seconds.
	NAV IF LOST	The connection to the Nav interface cannot be established. 5 Cable defective 6 Nav interface defective
	TRIGGER LOST	The trigger signal coming from the antenna unit is not present. 7 The connection to the antenna unit is interrupted
	SHF LOST	No course line signal is received from the antenna • Reed contact is defective • Connection to the antenna unit is interrupted
	BAD GNSS SET	The GNSS configuration (1 or 2) is incorrect. • wrong or too few sentences available • too many GNSS devices configured
	BAD COMPASS SET	The compass configuration is incorrect. • wrong sentences, too few sentences
	BAD TURN IND SET	The turn indicator configuration is incorrect. • Multiple RED sets, wrong set • Analogue and digital turn indicator are activated simultaneously.
	BAD PILOT SET	The autopilot configuration is incorrect. • Multiple RED sets, wrong set • Analog and digital autopilot are activated simultaneously.
	BAD RUDDER SET	The rudder configuration is wrong. • Multiple RSA records, wrong record • Analog and digital rudder are activated simultaneously.
	BAD DEPTH SET	The depth sensor configuration is incorrect. • More than two DPT sets, wrong set
	BAD NMEA TYPE	When configuring a digital interface, no TYPE was assigned.
	BAD CNF COUNT	The allowed number of compass or GNSS has been exceeded. • More than a compass • More than two GNSS • Compass in combination with GNSS
	REC FAIL	The recording function has failed. • The recording disk is not mounted correctly or is defective • The capacity of the recording disc does not match the enabled option.

	HDT LOST	No heading is received from the compass. • Power supply compass sensor • Data cable to compass sensor • Compass sensor has poor reception or is defective
	GLL LOST	No data is received from position device one. • The compass sensor does not output GLL • Power supply compass sensor • Data cable to compass sensor • Compass sensor is defective
	RMC LOST	No data is received from position device two. • Compass sensor device does not output RMC • Power supply compass sensor • Data cable to compass sensor • Compass sensor is defective
	RED LOST	No data is received from the turn indicator. • Power supply turn indicator • Data cable to turn indicator • Turn indicator is defective
	PILOT LOST	No data is received from the autopilot. • Power supply autopilot • Data cable to autopilot • Autopilot is defective
	RSA LOST	No data is received from the rudder. • Power supply rudder sensor • Data cable to rudder sensor • Rudder sensor is defective
	VTG LOST	No COG and SOG data is received. • Compass sensor device does not output VTG • Power supply compass sensor • Data cable to compass sensor • Compass sensor is defective
	DPT LOST	No data is received from the depth sensor. • Power supply depth sensor • Data cable to depth sensor • Depth sensor is defective
	CSP LOST	No data is received from position device two. • Compass sensor Device does not output CSP • Power supply compass sensor • Data cable to compass sensor • Compass sensor is defective
	AIS TPR LOST	No data is received from the AIS transponder. • Power supply transponder • Data cable from transponder (AIS IN) • Transponder is defective
	AIS TPR RESP	The AIS transponder does not respond to interrogations. • Power supply transponder • Data cable to transponder (AIS OUT) • Transponder is defective
	AIS POS LOST	The AIS position is not received. • Transponder configuration • Data cable Transponder - GNSS • GNSS of transponder is defective
	TIME INVALID	The time has an invalid value. • The battery of the internal clock is empty • A time source (GNSS or AIS device) provides a wrong time
	NEW SRM	A new SRM has been received. To acknowledge the message, the inbox must be read.

	INVALID POS	Compass sensor does not provide a valid position. As long as the position is not valid, no AIS objects are displayed and the ECDIS mode cannot be activated. • No satellite reception (e.g. under bridge) • Compass sensor covered (e.g. snow) • Compass sensor is defective
	UNSAFE POS	GNSS device provides an interpolated position. The position is only interpolated for a certain time before the state changes to INVALID POS. If a valid position is received again within this time, the warning disappears. • No satellite reception (e.g. under bridge)
	INVALID RED	The turn indicator does not provide a valid RED. • Analog turn indicator gives signal RED ALARM • Turn indicator cannot guarantee measurement accuracy • Jumper for RED alarm on Nav Inteface set incorrectly.
	INVALID PILOT	The autopilot does not provide a valid RED. • Sensor defective
	INVALID RSA	The rudder sensor does not provide a valid RSA. • Sensor defective
	INVALID COG	Compass sensor device does not provide a valid heading. • No satellite reception (e.g. under bridge) • Compass sensor covered (e.g. snow) • Compass sensor is defective
	INVALID SOG	Compass sensor device does not provide valid speed. • No satellite reception (e.g. under bridge) • Compass sensor covered (e.g. snow) • Compass sensor is defective
	AIS TPR ALARM	An alarm was received from the AIS transponder.
	MAP REG FAIL	The ECDIS card could not be registered. • One or more passwords are not correct • Password/dongle combination incorrect
	FORMAT DISK	A hard disk was detected (memory expansion), which was not yet formatted. This is now being partitioned and formatted. As soon as the process is completed, all functions (e.g. recording functions) are available. When the process is complete, the message disappears automatically.
	OFF COURSE	The current GNSS position deviates from the route by more than the specified course deviation. As soon as the current GNSS position is back on course, the message disappears automatically.
	MAP IMPORT OK	Cards were imported successfully.
	MAP IMPORT FAIL	No maps could be imported. • No USB data carrier is inserted • There is no card data on the data carrier. • The disk format is not VFAT
	KBD PLUG-IN	An inserted alphanumeric keyboard was detected.
	KBD UNPLUG	An inserted alphanumeric keyboard has been removed.
	NEW MESSAGE	A new AIS message has been received.
	MESSAGE SENT	An AIS message was successfully transmitted.
	MAP RESTORE OK	The map has been successfully updated to the previous state.
	MAP CLEAR OK	All cards have been deleted.
	AUTO TUNE OFF	Auto-Tune has been disabled.
	DISK FULL	There is no memory available for this function. Before this function can be executed, memory must be released.
	DISK PLUG-IN	An external storage medium was detected.
	DISK UNPLUG	A detected storage medium has been removed.

	NO DISK	No external storage medium could be detected.
	NO FILE	The file to be imported could not be found in the selected directory.
	INVALID HW ID	The hardware ID of the file to be imported does not match that of the device.
	INVALID SIGN	The signature of the file to be imported is invalid. Possible reasons: • The date setting of the device is incorrect • The option file was sent unzipped by e-mail • Special characters in the folder label
	NO OBJECTS	There are no objects to display. This display is generally valid. If, for example, no AIS objects are available for an AIS report, or if an info report of navigation lines is to be displayed, but no navigation lines are available, ...
	ONLY IN STANDBY	Certain functions (e.g. switching to map mode) are only possible in standby mode.
	PLEASE WAIT	No new actions can be performed until the operation has been completed by the system.
	PHOTO	Screenshot was recorded.
	SUCCESS	Action was executed successfully.
	SYSTEM OK	No errors present.

Table 10: Alarms and warnings

14 Lizenzen

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