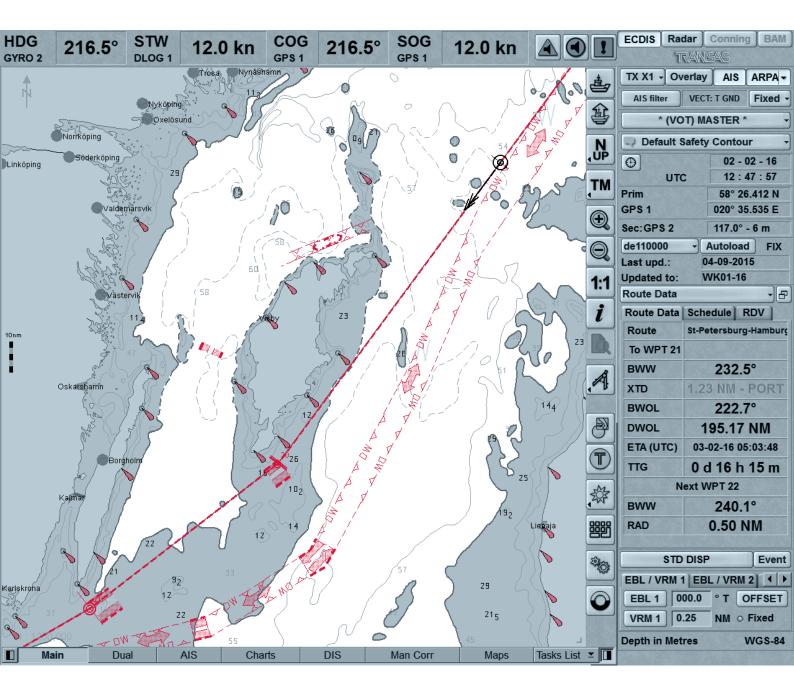
## MULTI-FUNCTIONAL DISPLAY VERSION 3.00.340 ECDIS QUICK REFERENCE





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# CONTENTS

PURPOSE	 4
HANDLING CHART COLLECTION	 5
Navi-Planner 4000 Start/Stop Operations	 5
Data Management	 6
Data Source Scanning	 6
Installing All Data	 7
Installing of Certain Charts	 7
Obtaining Chart Correction	 9
Base Maintenance Service of TX-97 Format Charts	 9
Professional Maintenance Service of TX-97 Format Charts	 9
Transas SENC Format Charts Updating	 10
ENC Format Charts Updating	 10
How to use the official chart corrections	 10
RUNNING ECDIS TASK	 11
ECDIS USER INTERFACE	 12
Control button group	 13
Control panel	 13
ES6 KEYBOARD	 15
USER INTERFACE AND KEYBOARD KEYS EQUIVALENTS	 16
HANDLING CURSOR	 17
Free Cursor in Main Panel	 17
Free Info cursor	 17
Graphic cursor.	 18
HANDLING ROUTES	 20
Graphic Method of Route Creating	 20
Loading Route	 23
Setting of Safety Parameters in the Sailing Along the Route	 25
MONITORING OF SAFETY ALERTS	 27
ACQUIRING TARGETS IN THE ECDIS TASK	 29
Acquiring Targets for Tracking	 30
Canceling Tracked Targets	 31
SELECTING NAVIGATIONAL SENSORS	 33
Setting Position Sources	 33
Ship Position Correction	 34
Manual Input of EPFS Offset	 34
Correction of Ship Position by the ECDIS Task Cursor	 34
Setting Heading Source	 36
Setting Speed Sources	 36
Setting Speed Source Through the Water	 37
Setting Speed Source Over the Ground	 37
Setting Depth Source	 38
ABBREVIATIONS USED IN THE USER INTEFACE	 39

# PURPOSE

The main purpose of the Navi-Sailor 4000 ECDIS MFD is to:

- Display on the electronic charts
- Display the ship position on the electronic chart
- Monitoring of approach to the dangers to navigation plotted on electronic vector charts or on map created by navigator
- Route planning and drawing up the schedule of proceeding along this route
- Solution of various kinds of navigational tasks (Navtex database, Tide and Currents database, SAR routes).

This Quick Reference provides initial hands-on experience for the quick launch of the Navi-Sailor ECDIS. It includes the following brief descriptions of the most significant features:

- Quick tour of the user interface (pages 12–16)
- Handling chart collection (pages 5–10)
- Acquiring targets in the ECDIS Task (pages 29–32)
- Handling routes (pages 20–26)
- Selecting and adjusting navigational sensors (pages 33–38).

Full information is contained in the detailed documents:

- Multi-Functional Display (v. 3.00.340). ECDIS User Manual.
- Multi-Functional Display (v. 3.00.340). RADAR User Manual.
- Multi-Functional Display (v. 3.00.340). Functional Description.
- Multi-Functional Display (v. 3.00.340). Additional Functions.
- Multi-Functional Display (v. 3.00.340). Installation Guide Part I.
- Multi-Functional Display (v. 3.00.340). Utilities.
- Multi-Functional Display (v. 3.00.340). Installation Guide Part II.

# HANDLING CHART COLLECTION

### Navi-Planner 4000 Start/Stop Operations

To run Navi-Planner 4000 press the **NAVI-PLANNER** button.



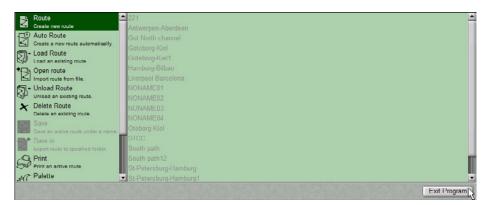
The following window will be displayed upon start of Navi-Planner 4000 loading.



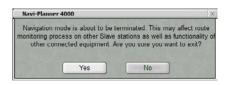
After the program loading, the Navi-Planner 4000 screen will be displayed.

To turn the Navi-planner 4000 off press Transas button  $\widehat{\mathbb{T}}$  in the Task Selection Area.

Press **EXIT PROGRAM** button in the bottom right-hand part of the menu window, the confirmation window will appear.



Press **YES** button to confirm exit from the program.



The program will be closed.

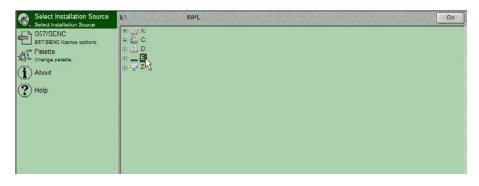
### Data Management

#### DATA SOURCE SCANNING

If you have any data on a CD/DVD or on the memory stick received by e-mail, which you wish to install, press the Transas button () and choose the **SELECT INSTALLATION SOURCE** item from the drop-down menu.

Select Installation Source Select Installation Source S57/SENC S57/SENC license options. Change palette About () About () Help	C:UsersiredtoxUbeintopINPL
	Exit Program

Specify the path to the source, which contains the data and press **GO** button.



A similar result can be obtained by using the Ribbon. Switch to **INSTALL** tab and press **BROWSE** button in **SCAN** group.

Install Ord	er )							
6			111 111		R	E	F	De
DVD Drive	Browse	Install	Select All	Select		Deselect All	ENC Permits	Create Report
Sc	an		CI	hart Selectio	n		License	Reports

For fast DVD scanning (where the data is most frequently stored) press **DVD DRIVE** button in **SCAN** group.



#### The **SOURCE SCAN COMPLETED** window will open up.

This window displays all the possible operations accessible from the scanned source.



Specify the necessary action.

#### INSTALLING ALL DATA

Perform data source scanning (see previous paragraph). Specify the necessary action.



Press the **INSTALL SELECTED ITEMS** button. The data will be installed, and an operation log will be formed.

**NOTE:** If the **SHOW CHARTS LIST ONLY** button is pressed, the **EXTERNAL STORAGE** table will display a list of charts contained in the scanned storage for the selection and installation in the manual mode.

Navi-Planner Report			×
Back Print Export Close			
			-
18-01-2016 14:01:01 UTC W01 Charts catalogs install			
Name	Format		
Transas World Folio, Issue WF 59, Main Collection CD 1	CLL	Installation	Ok
Total: 1 items processed			
			•

Uploading Charts to ECDIS

After the installation, data is automatically synchronized with the MFD. Synchronization process is displayed in the top right corner of the Navi-Planner 4000 screen.

#### INSTALLING OF CERTAIN CHARTS

Perform data source scanning (see previous paragraph). Specify source of charts.



Press the **SHOW CHARTS LIST ONLY** button.

The EXTERNAL STORAGE table will be switched ON automatically.

After the ending of the disk scanning the table will display a list of charts contained in the scanned storage.

-	Name	Scale	Last Update	Expires	Format	Status
Г	10103	1:2,000,000	22-08-2015		TX-97	Licensed
Г	10104	1:2,000,000	23-08-2015		TX-97	Licensed
Г	12317	1 : 200,000	22-08-2015		TX-97	Licensed
Г	12318	1 : 200,000	22-08-2015		TX-97	Licensed
Г	13003	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13014	1 : 100,000	23-08-2015		TX-97	Licensed
Г	13025	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13027	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13029	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13314	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13316	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13318	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13319	1 . 100,000	22-08-2015		TX-97	Licensed
Г	13328	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13330	1 : 100,000	22-08-2015		TX-97	Licensed
Г	13331	1 : 100,000	11-07-2015		TX-97	Licensed
Г	13332	1 : 100,000	23-08-2015		TX-97	Licensed

Select the charts needed to be installed. The selection can be done *by region, by cursor, by point on map, by route.* These options are available in **INSTALL** tab on the ribbon.

In the Ribbon switch to **INSTALL** tab. Press **INSTALL** button in **CHART SELECTION** group.



The charts will be installed, and an operation log will be provided.

Navi-Planner Repor	N/	Close	
8-01-2016 14: Source: Transa			nstell , Main Collection CD 1
lhart	Format	Scale	Result
1259	Tx97	1:1500000	Installation Ok
4010	Tx97	1:10000000	Installation Ok
	Tx97		Installation Ok

Close the log. Chart installation process is completed.

In the left part of the Navi-Planner 4000 screen, press the **INSTALLED CHARTS** button to display the corresponding table.

The installed charts are displayed in the table.

( second )	Name	Scale	Last Update	Updated to	Expires	Format	Status V
Γ	RU2M2LB0	1 * 700,000	15-11-2014	WK46-15	1-2-2016	SENC	Licensed
Г					1-2-2016	SENC	Licensed
Г	UA3AD457			WK46-15	1-2-2016	SENC	Licensed
Г	UA3AD485			WK46-15	1-2-2016	SENC	Licensed
Г				WK46-15	1-2-2016	SENC	Licensed
Г	UA3AD487			WK46-15	1-2-2016	SENC	Licensed
Г	RU3MBLJ0			WK46-15	1-2-2016	SENC	Licensed
Г	RU4MDLM0			WK46-15	1-2-2016	SENC	Licensed
Г	TR100010			WK46-15	1-2-2016	SENC	Licensed
Г	GB800001	1:2,500,000	07-01-2016		1-1-2017	AIO	Licensed
Г					1-2-2016	SENC	Licensed
Г	GB104209			WK36-15	1-2-2016	SENC	Licensed
Г	CA573242	1 : 2,000	27-08-2014	WK46-15	1-1-2016	SENC	Expired
Г	CA576695	1 : 1,500	07-07-2014	WK46-15	1-1-2016	SENC	Expired
Г	CL5AI150	1 : 12,000	09-03-2015	WK46-15	1-1-2016	SENC	Expired
Г	CA573306	1 : 10,000	13-08-2015	WK46-15	1-1-2016	SENC	Expired 💌

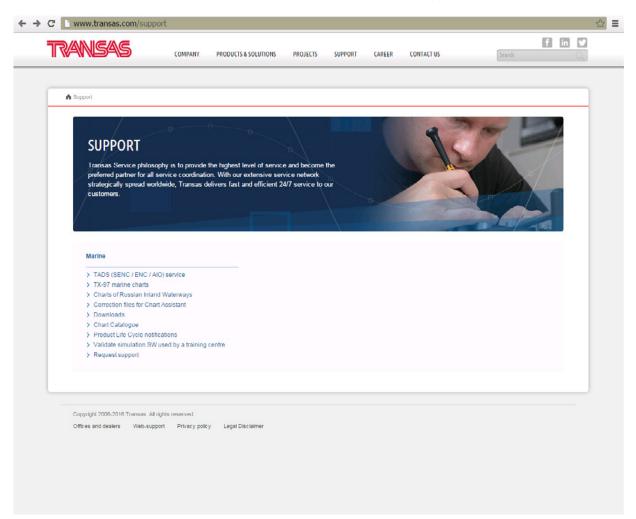
Charts in the table are shown in different colours:

- Red for charts whose license has expired;
- Orange for charts whose license will expire in less than 30 days;
- Black for the rest of the charts.

For more information see document: Navi-Planner 4000 (v. 3.00.346). User manual, chapter 5: 'Handling of Charts and Chart Information'.

## **Obtaining Chart Correction**

To obtain chart correction, please, visit Transas site www.transas.com/support



#### BASE MAINTENANCE SERVICE OF TX-97 FORMAT CHARTS

The base chart correction implies quarterly renewal of the ship chart folio taking into account changes in and additions to the WORLD CHART FOLIO CD. Supplied along with the collection is its license for one calendar year. The base updating procedure includes the replacement of license and installation of charts from a newly received WF CD.

#### PROFESSIONAL MAINTENANCE SERVICE OF TX-97 FORMAT CHARTS

Professional updating includes the base updating (see above) and Notices to Mariners Correction Service, which provides a capability to 'infuse' the correction information into the ship folio charts weekly. The updating information is accumulated during the calendar year. Therefore, charts installed from the last WF CD of the previous year and the latest updating file of the current year will correspond to the updating level of the last WF CD of the current year

A license for the use of this option is provided for the term of one year.

The updating information is prepared every week and is placed on the company web site (*www.transas.com/support/marine/ChartCorrections*). The user specifies the delivery at the time when the Agreement is signed: directly via Internet or on electronic carriers via shore agencies representing the user's interests.

#### TRANSAS SENC FORMAT CHARTS UPDATING

The updating service implies weekly uploading of SENC data for the SENC Base DVD on the company site (*www.transas.com/support/marine/senc*).

SENC updating data consists of:

- Update includes all the incremental updating files in S-57 received since the time of SENC DVD issue (AIO/ENC/SENC/TGT Update DVD for charts installed from TADS AIO, ENC, SENC and TGT Collection week 48 WF70 DVD 1-2) it should be noted that available for installation is only the updating for charts purchased by the customer
- New Charts includes all the new charts in Transas SENC format received since the time of SENC DVD issue
- New Edition includes all the new edition charts in Transas SENC format not included in SENC DVD. The updating information is stored in the form of archives (e.g. **TADS UPDATE 01 WF70.PART1.RAR**).

For Transas format SENC, the following updating can be used:

- Open S-57 updating
- S-57 updating encoded in accordance with S-63 standard (if valid permits are available)
- Transas encoded S-57 updating
- Binary updating (received with e-mail from the Transas chart server).

#### ENC FORMAT CHARTS UPDATING

ENC format charts can be updated via the company's Internet site (*www.transas.com/support/marine/senc*). The collection on the site is updated every week.

### HOW TO USE THE OFFICIAL CHART CORRECTIONS

Open the site page www.transas.com/support/marine/senc

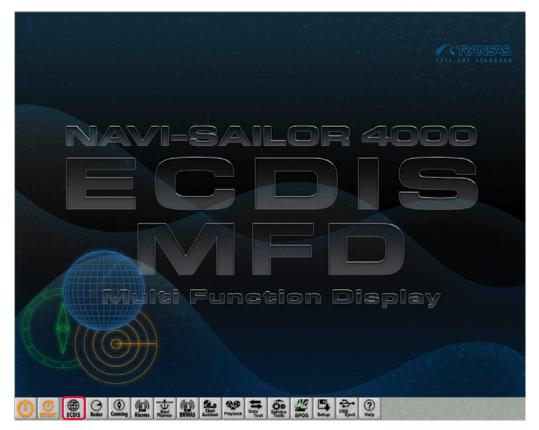
		Respect support
General information		
Income Transas Charts Service Guide.pdf	540 KB	Consert arrow menn
TADS issues Schedule for 2010 pdf	119 KB	> SENC service
his is a chart library flast contains all the new data motinduded in "TADS Collection Week 45 WF10 D/D 1-4" new charts, new editions of charts and updated charts. Ihe ibrary has been packed as ZP andwer. You need to unap the ibrary before leading to Haw Planner or Chart Assistant.		View catalogue     Manne shans TX-07     Charts of Russian Inland
AIO/ENC/SENC/TGT Update DVD for drans installed from TADS AIO, ENC, SENC & TGT Collection week 48 WF10 DVD 1-2)		Waterways > Correction files for Chart Assistant
TADD AIO WIDT WETTO Year2018 zip AIO Update CD	IT MB	> Downloads
TADO Update01 WF70 partitizar	630 MB	> Chart Catalogue
TADS Update DVD	eso wa	
Catalogue01 WF70 TADS zip	3.6 5.00	
TET README AUD.TXT	7.918.00	
TXT README TADS.TXT	7 108	
Download TADS BASE DVD Images Insee are the Base DVD images which contain all of data in the TADS service.	209.2 KB	
TADS 3ENC collection		
TADS SENC collection week48 WF70 DVD(TADS SENC Coverage) pan01 exe	425.2 MB	
TADS SENC collection week48 WF70 DVD(TADS SENC Coverage) part02 rar	£29.2 MH	
TADS SENC collection week48 WF70 DVD(TADS SENC Coverage) part03 rat	429.2 Mil	TADS Base DVD's
TADS ALD ENCISENCIATION	-	IADO Dase DVD'S
TADS AID ENC SEINC(US,APACchans) TGT collection week48 WF70 DVD(S-63 EINCchans,AID,SEINC(US,APACchans),TGTNotoes) part I.ave	(29.2 MB	

File **TADS UPDATE <WW> WF<NN>.PARTX.RAR** contains all the new charts, new editions of charts and updated charts which are not included in the latest 'TADS SENC Collection DVD'.

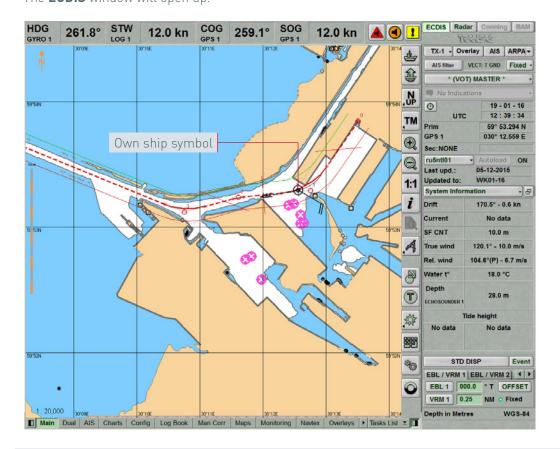
If you have any previous issue of TADS SENC chart folio it is recommended to download Base DVD images which contain all of data in the TADS service and install new TADS SENC Collection before installing updates.

Web SENC Service is being used only by customers who have TADS service and who do not use the Online Update opportunity that is being provided by Navi-Planner 4000 (see document Navi-Planner 4000 (v. 3.00.346). User Manual, Chapter 5)

# **RUNNING ECDIS TASK**

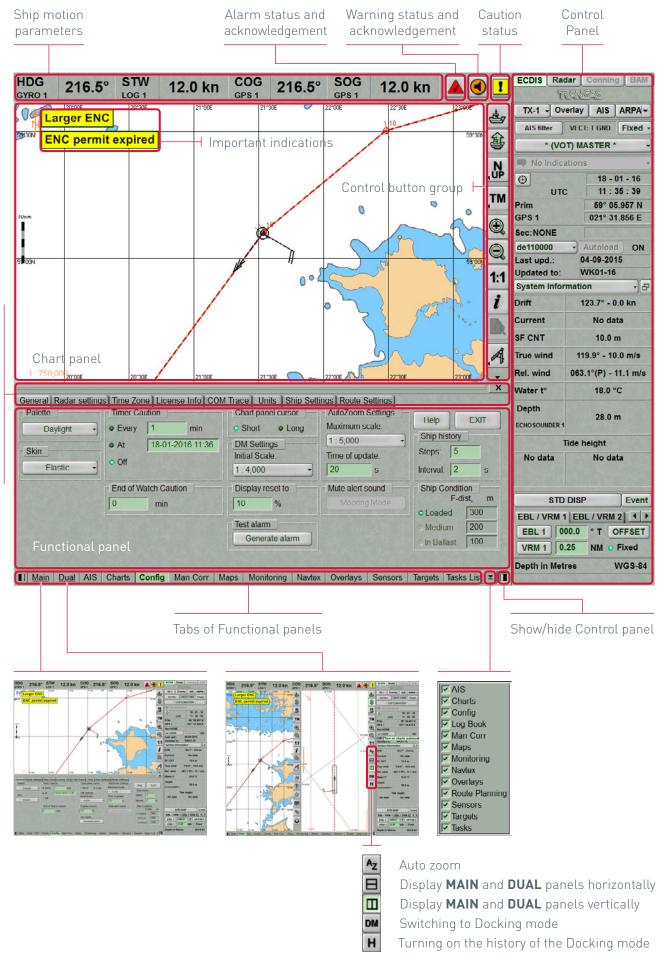


To run ECDIS task press the **ECDIS** button in the **TRANSAS INTEGRATOR** window. The **ECDIS** window will open up.



For more information see document: Multi-Functional Display (v. 3.00.340). ECDIS user manual, Chapter 2: 'ECDIS Task Turning On/Off'

# **ECDIS USER INTERFACE**

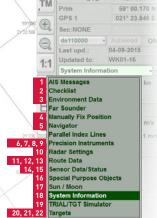


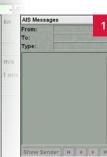
## Control button group

RM TM	Return to the display of the area where the own ship is located Set Own Ship symbol at any location on the chart panel Orientation to the north/by the compass heading/by the direction of the current leg of the monitored route Selecting Relative motion mode/True motion mode
	Increase the chart display scale
	Decrease the chart display scale
1:1	Display the chart on the original scale
i	Obtain chart and chart objects information
	View ARCS and Seafarer format charts
RL GC	Use Quick Distance Tool and select the mode of distance measurement
æ	Turn on the display of the chart over the radar picture
$\overline{\mathbf{T}}$	Open Transas Integrator toolbar
☆ ▲ C C ☆	Select the screen colour palette to suit outside illumination
器路	Display the virtual keyboard
	Create and load User Configurations
$\bigcirc$	Enable Man Over Board mode

### **Control panel**

ECDIS Radar Conning BAM	NS 4000 ECDIS applications loading or switching	de110000         Autoload         ON           Last upd.:         04-09-2015         Updated to:         WK01-16	Charts Area
Position Dropped	Return to the own ship location	System Information - 2	Display Panel
	Sensors selection	Current No data	
(VOT) MASTER * -	Status in the network	True wind 119.9° - 10.0 m/s Rel. wind 063.1°(P) - 11.1 m/s	
AIS filter VECT: T GND Fixed -	AIS Filter status and vectors settings	Water t° 18.0 °C Depth 28.0 m ECHOSOUNDER 1	
No Indications	Indications display	Tide height	
(18 - 01 - 16)           UTC           11 : 35 : 39	Time	No data No data	
Prim         59° 05.957 N           GP\$ 1         021° 31.856 E	Primary positioning system	STD DISP Even	Dperational Panel
Sec:NONE	Secondary positioning system	EBL / VRM 1         EBL / VRM 2         •           EBL 1         000.0         ° T         OFFSET           VRM 1         0.25         NM • Fixed	3





See ECDIS user manual, Chapter 10, Reception of Messages in AIS System' paragraph



See Additional Functions, Chapter 1, 'Using Checklist in MFD



See ECDIS user manual, Chapter 11, 'Obtaining of Information in the ECDIS Task'

		0	Cance	4
Lines	Of Po	sition 4	(LOP) 5	6
Bearing	Dist	ance	Brg /	Dist
Automa				٩P

See Functional description, Chapter 3, Manually Fixed Position' paragraph

Navigator	5
HDG -	330.0
STW -	6.2 kn
COG -	292.2°
SOG -	6.2 kn
ROT -	0.0°/min
XTD -	4 m STBD

See ECDIS user manual, Chapter 4, Obtaining Current Information about Navigational Data'



See Additional function, Chapter 1, Precisions Instruments' paragraph



See Functional description, Chapter 5, 'Route Monitoring' paragraph

System

Drift



See Additional function, Chapter 1, 'Precisions Instruments' paragraph



See Additional functions, Chapter 1, Precision Instruments'

TRIAL/TGT Simulator

Trial line: 24

Delay: 4

Set SPD:

Play

Trial Manoeuvre TGT Simi

Radius: 0.50 NM Set CTW: 180.0°

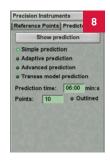
min

None

Drop Show

min NM

19



See Additional function, Chapter 1, Precisions Instruments' paragraph

Sensor data/status Primary Status AIS VDL D 14 Fixed UTC 17:20:53 47° 36.467 N Latitude 122° 28.835 W Longitude Quality SPS 5 Satellites HDOP 1.5 Data age 10.0 Station ID 0000

See ECDIS user manual, Chapter 4, 'Navigation Tasks'



See ECDIS user manual, Chapter 10, 'Handling Targets' paragraph



See Additional function, Chapter 1, Precisions Instruments' paragraph

Sensor data/	
Primary Stat	us] AIS VDL C 15
Source	Unknown
итс	UTC Lost
Latitude	47° 36.492 N
Longitude	122° 28.856 W
COG	330.0°
SOG	6.2 kn
HDG	330.0°
ROT	0°/min

See ECDIS user manual, Chapter 11, 'Obtaining Information on Own Ship AIS Data paragraph

Targets	04
Acquisition	AIS TgtLr/ 21
DR for AIS	tgts > 5.0 kn
AIS target f	ilter
o Sleeping t	argets
• RNG •	CPA • TCPA
6.00 NM 0	0.25 NM 0.0 min
Display by ty	/pe
o Class A	<ul> <li>Base station</li> </ul>
o Class B	o SAR aircraft
o AtoN	o SART
o AIS LR	O Virtual AtoN
Association	OFF

See ECDIS user manual, Chapter 10, 'Handling Targets' paragraph

Range:	6 N	M		10
Rings:	1.0 1	M	Sho	w
Bright:	•			Ī
Gain:	•			•
Rain:	•			
Sea:	•			
Transpar	ency:	0 1	2	3
Overlay v	window	Set	Cle	ar
Accumula	ation:	N	lone	
Echo col	or:			
o Auto a	diust ra	nge by	scale	

See Functional description, Chapter 8, 'Radar Overlay and Targets in the ÉCDIS Task



See ECDIS user manual, Chapter 4, 'Using Special Purpose Objects' paragraph

#### For 'Multipanel' window only



See Additional functions, Chapter 1, Handling ECDIS Task Configurations'

#### Route Data Route Data Schedule Rt 11 To WPT 20 BWW 216.5° 2 m - STBD XTD 216.5° BWOL 157.51 NM ETA (UTC) 19-01-16 01:38:50 TTG 0 d 13 h 07 m Next WPT 21 232.5° BWW RAD 0.50 NM

See Functional description, Chapter 5, 'Route Monitoring' paragraph

Set point	53° 38. 005° 03.01	1
Date:	18-12-13	3
Calculate	UTC	
Sunrise:	07:52	
Sunset:	15:19	
Moonrise:	16:50	
Moonset:	08:09	
Nautical twilight		
Morning start:	06:23	
Evening end:	16:49	
Moonphase:	Full moo	n

See ECDIS user manual, Chapter 11, Obtaining Information on Sun/Moon]



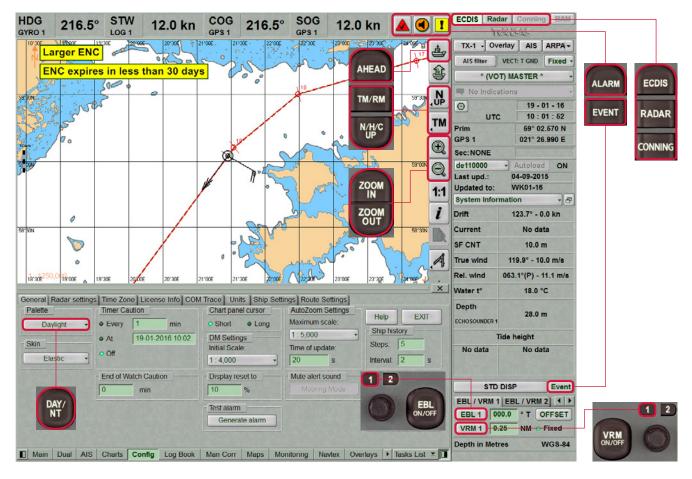
See ECDIS user manual, Chapter 11, Obtaining Current System Information' paragraph

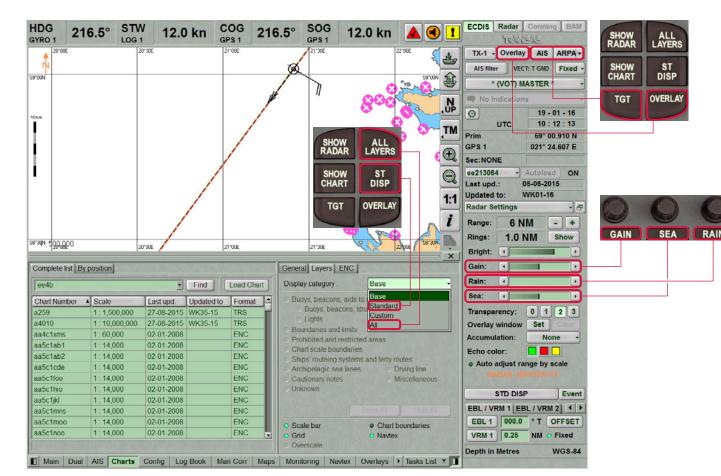
# ES6 KEYBOARD



For more information see documents: Multi-Functional Display (v. 3.00.340), ECDIS user manual, chapter 1: 'Keyboard' Multi-Functional Display (v. 3.00.340), Installation guide, chapter 3: 'Transas ES6 Dedicated Keyboard with Trackball'

# **USER INTERFACE AND KEYBOARD KEYS EQUIVALENTS**





# HANDLING CURSOR

The ECDIS task provides two cursor modes: free cursor and graphics cursor. Free cursor is moved over the entire screen by the trackball assuming various forms in different ECDIS task areas.

In the functional panel areas, free cursor assumes the form of an arrow and operates as a standard Windows cursor. In the Chart panel area, free cursor can be used for the following ECDIS task functions: View, ERBL, Zoom, Info. To switch between functions press on the right trackball button.

## Free Cursor in Main Panel

View cursor  $\frac{+}{\text{View}}$  allows to obtain the following information:

- When View cursor is positioned on a target it assumes the form . A press on the left trackball button calls the target data card
- When View cursor is positioned on a lighthouse it assumes the form *i*. A press on the left trackball button calls the lighthouse data card
- When View cursor is positioned on a waypoint it assumes the form . A press on the left trackball button calls the WPT data card.

ARPA acquisition cursor + appears when target acquisition function is ON.

Cursor for cancelling ARPA tracking –  $\boxtimes$ .

AIS activation cursor –  $\triangle$ .

AIS deactivation cursor –  $\boxtimes$ .



Target acquisition function

0.26

# Free Info cursor

To enable Info function press the Info button *i*. The acquisition marker *c* appears in the Chart panel area. Position the marker on the necessary object and press on the left trackball button. **INFO** panel opens, and the cursor assumes the form of a standard Info cursor.

THE N

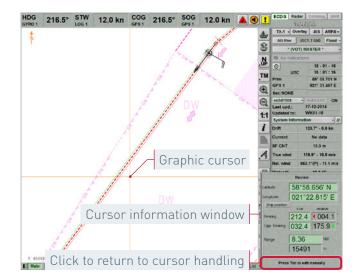
For more information see document Multi-Functional Display (v. 3.00.340). Functional description, Chapter 3: 'Navigational Tools'

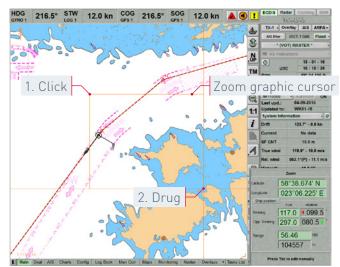
### **Graphic cursor**

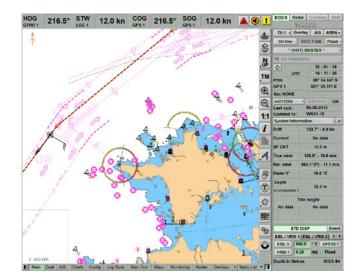
To perform selected ECDIS task function (View, ERBL or Zoom) you have to switch away from Free cursor to Graphic cursor by pressing left trackball button. Graphic cursor can be used over the Chart panel only. The graphic cursor is represented in an intersection of lines corresponding to the latitude and longitude of the given point. For graphic cursor, the cursor information window will appear in the bottom right corner of control panel. In this window you can enter manually cursor geographic coordinates, bearing and range. To switch to cursor information window press **TAB** key. To return to cursor handling press **CANCEL** or **APPLY** button in cursor information window. To switch away from Graphic cursor to Free cursor press right trackball button.

View graphic cursor is shown in the form of an intersection of two orange lines across the entire Chart panel. It allows movement to any chart point using trackball.

Zoom graphic cursor allows to increase selected area. To switch to Zoom graphic cursor select  $\stackrel{\oplus}{\xrightarrow{200}}$  and press left trackball button. Next, to select zooming area click the left trackball button at one of the corners of the necessary area. Drag the cursor to the opposite corner. Orange rectangle will appear following the cursor motion. Click the left trackball button again. Selected area will be increased.



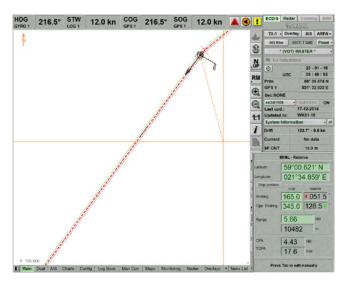




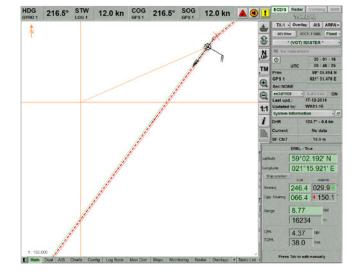
ERBL functionality depends on ship symbol motion mode which is selected in the control button group.

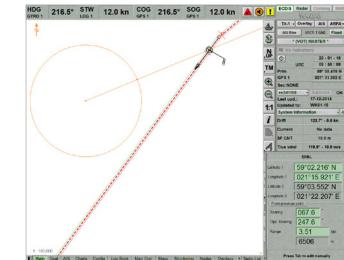
If the Relative motion mode is on RM, ERBL graphic cursor operates in three modes which are switched successively with the left trackball button:

1. **ERBL-RELATIVE MODE**: In this case, bearing and range to any point on the ECDIS task screen are measured relative to the own ship position. The cursor is attached to the point of the ECDIS task screen where it is set. If the cursor is immobile, then as the ship is moving, geographic coordinates are changing in the cursor information window, whereas the bearing and range remain constant.



2. **ERBL-TRUE MODE**: In this case, bearing and range to any electronic chart point are measured relative to the ship position. The cursor is attached to the chart point where it is set. If the cursor is immobile, then as the ship is moving, the range and bearing are changing in the cursor information window, whereas the geographic coordinates remain constant.





3. **ERBL MODE**: In this case, the bearing and range to any electronic chart point are measured relative to the point where the cursor was set in ERBL-True mode.

In the True motion mode  $\mathbb{T}$ , the ERBL operates in a similar manner in two modes: ERBL-True and ERBL.

# **HANDLING ROUTES**

### **Graphic Method of Route Creating**

Open **ROUTE PLANNING** panel by selecting the appropriate line of TASKS LIST menu on the **CONTROL** panel.

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The **ROUTE PLANNING** panel will appear. To create a new route click the **NEW** button.

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Main Dual AIS Charts	Config Log E	300K	Man Corr Ma	aps Moni	toring N	avtex Overlay	s 🕨 lask	ks List ≚ 🔳		

A standard graphic cursor will appear on the **CHARTS** panel, whereas the right bottom part of the ECDIS task screen will display **ADD WAYPOINT** information window.

Set the cursor in the start point coordinates by moving the trackball or using the data in **ADD WAYPOINT** window, and press the left trackball button. The symbol of the start point with its number ('0') will appear on the **CHARTS** panel.

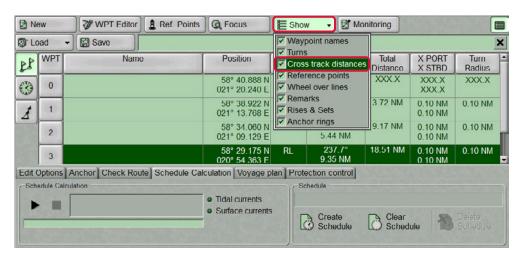
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Position the cursor in the coordinates of the next point.

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I Main Du	al AIS Charts	Config Log Bo	ook Man Corr I	Maps N	Ionitoring Na	vtex Overla	ys 🕨 Task	s List 🗉	Press	Tab to edit	manually

At this stage, a route leg line will be drawn between the cursor and the start point. Press the left trackball button: the **CHART** panel will display the next point symbol with '1' for number and the plotted route leg. By default, XTD lines are also shown.

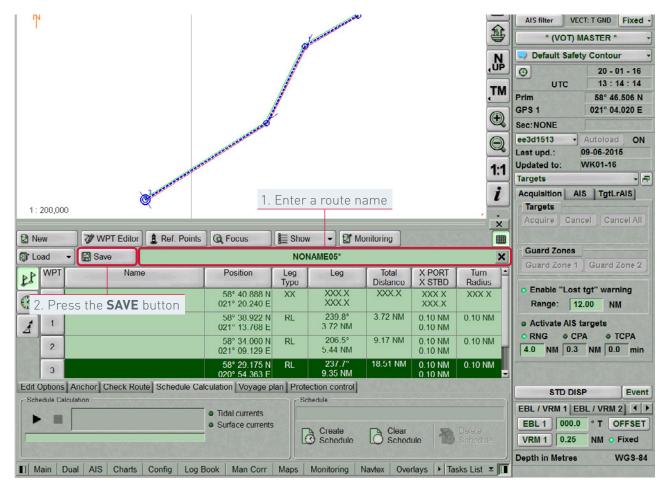
To turn off the display of XTD lines press **SHOW** button and uncheck **CROSS TRACK DISTANCES** checkbox.



If it is necessary to set several waypoints, repeat the trackball moving and left button pressing operation as many times as there are WPT's required to be set. If the cursor is positioned beyond the Chart panel boundaries, it will be re-drawn automatically so that there is always a chart from the chart folio under the cursor (provided Chart Autoload function is 'ON').

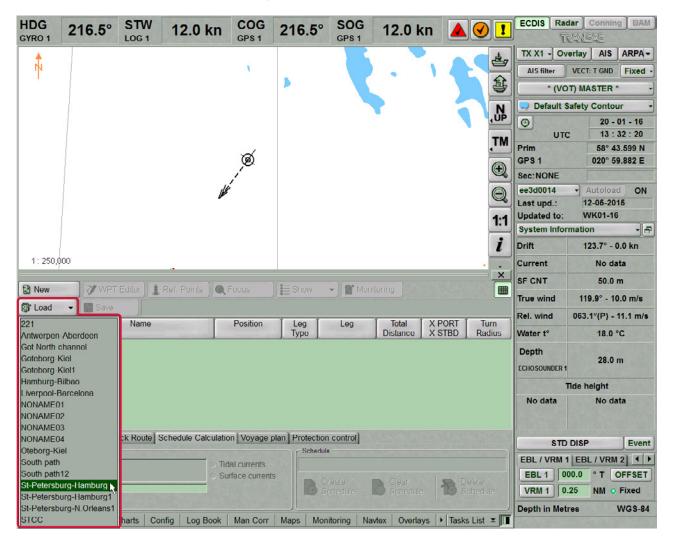
After the setting of the last point of the planned route, double click the right trackball button: the cursor will exit from the route planning and editing mode and will assume the form of the ECDIS task free cursor. The generation of the route is completed.

To save a route, enter its name in the name input line in the top part of the **ROUTE PLANNING** panel. Press **SAVE** button, the networked route will be saved in all the WS's.



### Loading Route

Open **ROUTE PLANNING** panel by selecting the appropriate line of TASKS LIST menu on the **CONTROL** panel.



In **ROUTE PLANNING** panel, press **LOAD** button to activate it. In the list which will open up, select the route required to be loaded in edition mode, and press the left trackball button. The route will be loaded. The list of waypoints will be displayed in the table.

2 N	ew	WPT Editor	Ref. Points	Q Focus	E Show	w 👻 🛃 Ma	onitoring		
Ø Lo	bad	🔹 📓 Save		5	St-Peters	burg-Hamburg			×
PP	WPT	Name		Position	Leg Type	Leg	Total Distance	X PORT X STBD	Turn Radius
3	0	St-Petersburg	ĺ	59° 53.844 N 030° 13.508 E	XX	XXX X XXX X	XXX X	XXX.X XXX.X	XXXX.X
4	1			59° 53.292 N 030° 12.754 E	RL	214.5° 0.28 NM	0.28 NM	0.10 NM 0.10 NM	0.50 NM
	2			59° 53.236 N 030° 11.608 E	RL	264.4° 0.74 NM	1.02 NM	0.10 NM 0.10 NM	0.50 NM
	3			59° 53 119 N 030° 10 756 E	RL	254.7° 0.32 NM	1.34 NM	0 10 NM 0 10 NM	0.50 NM
		Anchor Check Rout	te Schedule Cal	culation Voyage p	and the second second	ection control			
)	edule Cal			<ul><li>Tidal currents</li><li>Surface currents</li></ul>		Schedule with Create Schedule	T <u>C</u> Sche	edule for ETA	19:00  Delete Schedule

Several routes can be loaded simultaneously in the editing mode. As a button with route name is pressed, the route becomes active and can be edited in the table or on the ECDIS task screen by using the graphic editor.

To quick load the necessary route to monitoring mode, select it from the routes loaded in edition mode and press **MONITORING** button.

🔁 Ne	ew	WPT Editor	Ref. Po	oints 🔍 🧟 F	ocus	E Show	- 🛃 Mo	nitoring			
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28	WPT	Name	ETA	Slay	Time Zone	ETD	ΠG	Total Time	Speed	Average Speed	Ŀ
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1	1		24-11-15 20:00		00:00	24-11-15 20:00	00 d 00 h 00 m	00 d 00 h 00 m	12.0 kn	19.7 kn	1
-	2		24-11-15 20.04		00:00	24-11-15 20.04	00 d 00 h 03 m	00 d 00 h 04 m	12.0 kn	12.0 kn	1
	3		24-11-15 20:07		00:00	24-11-15 20:07	00 d 00 h 02 m	00 d 00 h 07 m	12.0 kn	6.5 kn	
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To unload the route, press the  $\times$  button to the right of the route name.

D Lo	ad	-	Save		9	t-Peters	burg-Hamburg			(
	_			1			-		VDODT	
2P	WPT		Name		Position	Leg Type	Leg	Total Distance	X PORT X STBD	Turn Radius
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-	1				59° 53.292 N 030° 12.754 E	RL	214.5° 0.28 NM	0.28 NM	0.10 NM 0.10 NM	0.50 NM
	2				59° 53.236 N 030° 11.608 E	RL	264.4° 0.74 NM	1.02 NM	0.10 NM 0.10 NM	0.50 NM
	3				59° 53 119 N 030° 10 756 E	RL	254.7° 0.32 NM	1.34 NM	0 10 NM 0 10 NM	0.50 NM
dit C	Options	Ancl	hor Check Rou	te Schedule Cal	culation Voyage p	lan Prote	ection control			
Sche	dule Ca	culation	n			Se	hedule	and the second second		
-		2			Tidal currents		Schedule with	T <u>C</u> Sch	edule for ETA	19:00
		J			<ul> <li>Surface currents</li> </ul>		Create Schedule	Clear	R	Delete
							Schedule	C Sched	lule LS	Schedule

NOTE: Setting of safety parameters in the sailing along the route and by the schedule is available only at station with the status MASTER.

ECDIS Radar Conning BAM HDG STW COG SOG 216.5° 12.0 kn 216.5° 12.0 kn 1 GYRO 1 LOG 1 GPS 1 GPS 1 TX X1 - Overlay AIS ARPA-1 AIS filter VECT: I GND Fixed 事 \* (VOT) MASTER \* Default Safety Contour NUP 0 0 20 - 01 - 16 14:54:30 UTC TM Prim 58° 30,426 N 0 GPS 1 020° 41.204 E 0 • Sec:NONE de110000 ON 10 04-09-2015 Last upd.: Updated to: WK01-16 1:1 System Information - 8 i Drift 123.7° - 0.0 kn Current No data The second 1:0500,000 SF CNT 50.0 m X Route Monitoring Safety Alerts Navigational Alerts True wind 119.9° - 10.0 m/s Headline COG vector HDG vector Ship by contour + Align by HDG + No wind Rel, wind 063.1°(P) - 11.1 m/s Ship Water to 18.0 °C St-Petersburg-Hamburg - Set schedule Unload XTD Radius WPT name Wheel over line Route Sun / Moon Course/Leg/Spd Heading mark Ref. point Remark Depth 28.0 m ECHOSOUNDER 1 Waypoints Past track se Alerts End of route Next waypoint: Track color **Tide height** - 20 Auto selection Out of XTD Plot interval: Time label: Own ship track No data No data 05 30 min Radius hours Out of schedule min From Route Table Track history • WPT approach 0 min • STD DISP Event Current Focus on Track 0 Off lea course EBL / VRM 1 EBL / VRM 2 4 🕨 Show time labels Show primary track EBL 1 000.0 °T OFFSET Show secondary track/position VRM 1 0.25 NM Fixed WGS-84 Depth in Metres 🚺 ፋ AIS Charts Config Log Book Man Corr Maps Monitoring Navtex Overlays Route Planning 🕨 Tasks List 📼 🔳

Open **MONITORING** panel by selecting the appropriate line of TASKS LIST menu on the **CONTROL** panel.

Use the tab in the top part of **MONITORING** panel which will open up, to switch to **ROUTE MONITORING** page. **ALERTS** group is intended for turning on/off and setting of safety parameters for the alarm generation during the sailing along the route and according to the schedule:

- END OF ROUTE to enable warning generation as the last WPT of the monitored route is passed;
- **OUT OF XTD** to enable alarm generation when the ship deviation from the route line is larger than the value set during the route planning;
- **OUT OF SCHEDULE** to enable and set of warnings generated when the ship is behind or ahead of the schedule;
- WPT APPROACH to enable warning generation as a set period of time before the approach to the WPT;
- **OFF LEG COURSE** to enable and set parameters of the warning generation if the deviation between the current course (HDG) and the route leg line direction exceeds the set value.

Check **END OF ROUTE** checkbox in **ALERTS** group to turn on the warning generation as the last point of the route is passed.

End of route

The parameter of tracking the ship position relative to the current route leg is set by default. XTD value is set at the time when the route is created in **ROUTE PLANNING** panel. The alarm is generated when the ship sails beyond the XTD limits.

#### Out of XTD

Use **OUT OF SCHEDULE** line to enter the behind-the-schedule or ahead-of-the-schedule time relative to the loaded schedule. The warning is generated when the set value is exceeded. Check the activated **OUT OF SCHEDULE** checkbox.

#### Out of schedule 10 min

Use **WPT APPROACH** line to enter the warning generation time value as the next WPT is approached. Check the activated **WPT APPROACH** checkbox to turn on the warning generation if the value of time of approach to the next WPT is less than the set one.

#### • WPT approach 5 min

Use **OFF LEG COURSE** line to enter the value of difference between the ship course and route leg direction. Check the activated **OFF LEG COURSE** checkbox to turn on the warning generation the difference between the courses exceeds the set value.

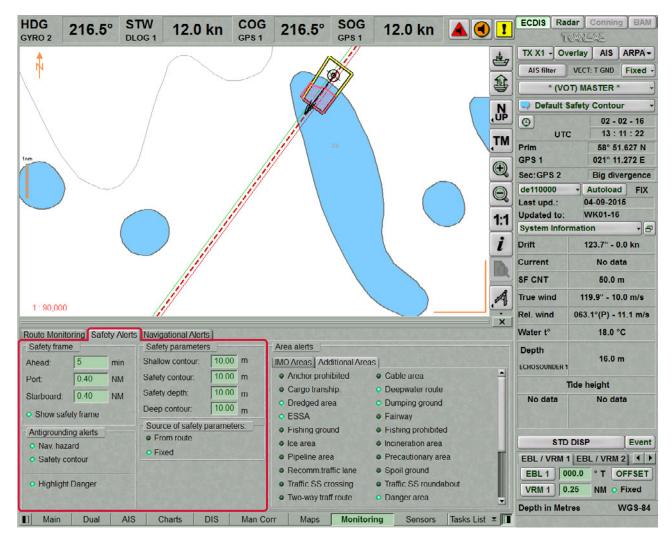
• Off leg course 5.0 0

For more information see documents: Multi-Functional Display (v. 3.00.340). ECDIS user manual, Chapter 9: 'Handling of Routes' Multi-Functional Display (v. 3.00.340). ECDIS user manual, Chapter 4: 'Loading of Route and Schedule in the Navigation Mode' paragraph Multi-Functional Display (v. 3.00.340). Functional description, Chapter 5: 'Routes and Schedules'

# MONITORING OF SAFETY ALERTS

NOTE: setting of safety parameters for the detection objects representing danger to navigation is available only at station with the status MASTER.

Open **MONITORING** panel by selecting the appropriate line of **TASKS LIST** menu in the tabs zone of the ECDIS task screen.



Use the tab in the top part of **MONITORING** panel, which will open up, to switch to **SAFETY ALERTS** page.

The **SAFETY FRAME** group is intended for setting the size of the frame, which will be used for the chart data analysis and for the generation of the Antigrounding alerts, Area alerts and Navigational alerts.

- **AHEAD** window for the input of advance time for alert generation. The time value determines the length equal to the distance covered by the ship proceeding at the current SOG (from 1 to 20 min);
- **PORT** to set the width of the corridor to the left of the ship (from 0.1 to 4.0 NM);
- **STARBOARD** to set the width of the corridor to the right of the ship (from 0.1 to 4.0 NM);
- SHOW SAFETY FRAME to turn on the display of a safety frame on the ECDIS task screen.

Ahead:	5	min
Port:	0.40	NM
Starboard	0.40	NM

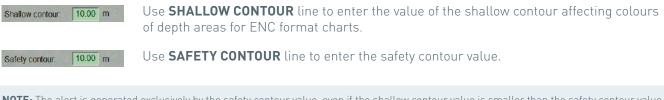
**SAFETY PARAMETERS** group is intended for the setting and viewing of safety parameters in the Navigation Mode:

- **SHALLOW CONTOUR** in the ENC four shades mode defines the value of the shallow contour affecting colours of depth areas (dark blue for depth areas with values shallower than the shallow contour);
- **SAFETY CONTOUR** mariner-selected contour to distinguish on the display between safe and unsafe water;
- **SAFETY DEPTH** mariner-defined depth to emphasize soundings on the display equal to or less than this value;
- DEEP CONTOUR in the ENC four shades mode defines the value of deep contour affecting colours of depth areas (the lightest S-52 colour for depth areas deeper than the deep contour).

**ANTIGROUNDING ALERTS** group contains checkboxes for enabling/disabling the following safety parameters:

- **NAV. HAZARD** to enable the caution generation upon the approach to the navigational hazards (the list of objects see document Multi-Functional Display (v. 3.00.340). Functional Description, Chapter 4, section Main Alerts Generation Principles, paragraph Safety Alerts);
- **SAFETY CONTOUR** to enable the alarm generation upon the approach to the depth line less than the Safety contour value;
- HIGHLIGHT DANGER to turn on the highlight the dangers on the Chart panel.

Set the necessary safety frame dimensions and check the SHOW SAFETY FRAME checkbox to show the safety frame. The safety frame is displayed with a black outlined rectangle.



NOTE: The alert is generated exclusively by the safety contour value, even if the shallow contour value is smaller than the safety contour value.



Use **SAFETY DEPTH** line to enter the safety depth value.

10.00 m Deep contour:

Use **DEEP CONTOUR** line to enter the value of deep contour affecting colours of depth areas for ENC format charts.

Check the activated **NAV. HAZARD** checkbox to enable the caution generation when the navigational hazards turns up within the safety frame.

Check the **SAFETY CONTOUR** checkbox to turn on the alarm generation as the safety contour is crossed by the safety frame.

Check the **HIGHLIGHT DANGER** checkbox to turn on the highlighting of the dangers on the Chart panel falling within the safety frame.

NOTE: If at least one checkbox in the Antigrounding alerts group is unchecked, the Chart panel displays the SF CNT important indication (for details see document Multi-Functional Display (v. 3.00.340). Functional Description, Chapter 4, section Indications, paragraph Important Indications).

For more information see documents:

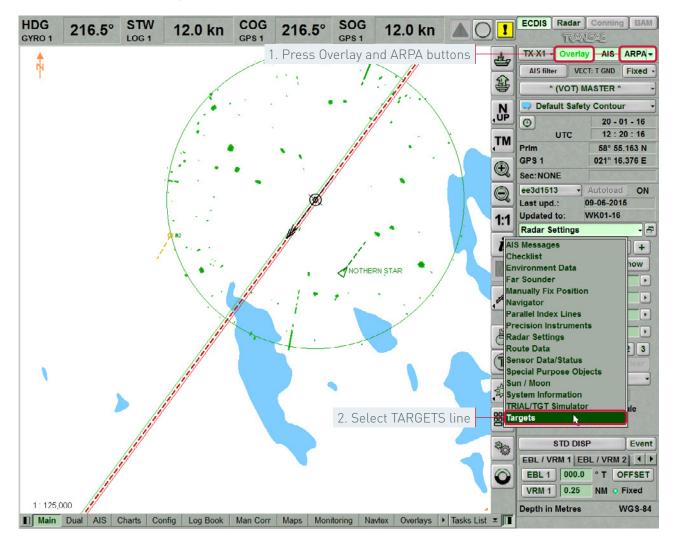
Multi-Functional Display (v. 3.00.340). ECDIS user manual, Chapter 5: 'Monitoring of Safety Alarms' section Multi-Functional Display (v. 3.00.340). Functional Description, Chapter 4: 'Main Alerts Generation Principles' section.

Safety parameters	S	100 m
Shallow contour:	10.00	m
Safety contour:	10.00	m
Safety depth	10.00	m
Deep contour.	10.00	m

<ul> <li>Nav. h</li> </ul>	nding alerts	
<ul> <li>Safety</li> </ul>	contour	
<ul> <li>Highli</li> </ul>	ght Danger	

# **ACQUIRING TARGETS IN THE ECDIS TASK**

To turn on the display of targets, press **OVERLAY** and **ARPA** buttons in the **SENSORS** window of the Control panel.



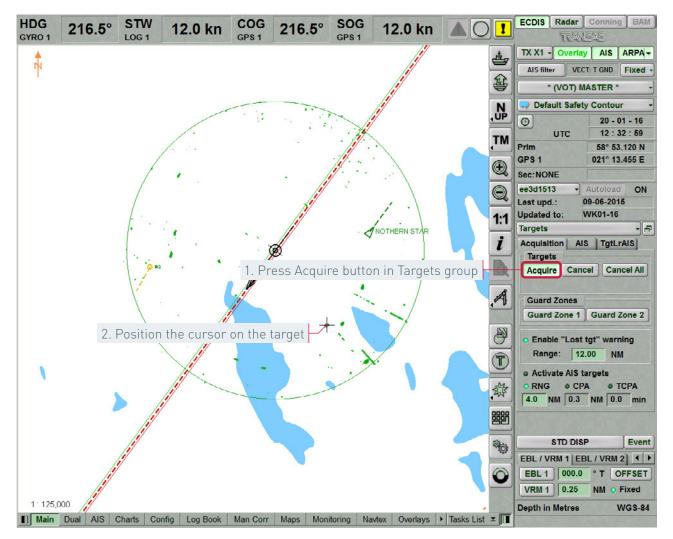
Press the button with the name of the set display in the **DISPLAY PANE**l window of the Control panel. In the list which will open up, select **TARGETS** line and press the left trackball button. The functionality for working with targets will be display on the Display Panel.



### Acquiring Targets for Tracking

To switch the cursor to target acquisition mode, press **ACQUIRE** button in Targets group. Position the cursor on the target and press the left trackball button.

In a minute, the acquired target will be displayed as a yellow coloured circle with pre-calculated motion vector.



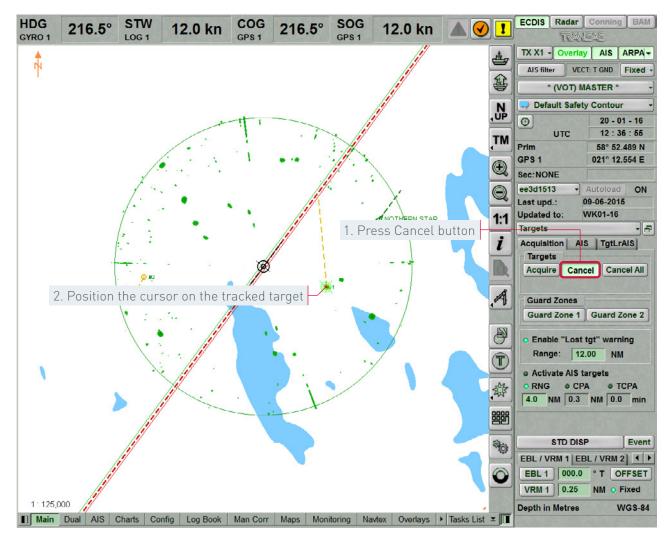
The target has been acquired for tracking.



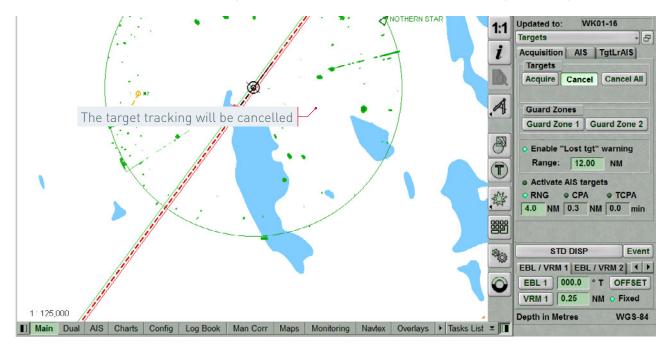
If you press the right trackball button, the cursor exits from the target acquisition mode.

## **Canceling Tracked Targets**

To switch the cursor to the target tracking cancelling mode, press **CANCEL** button in Targets group.

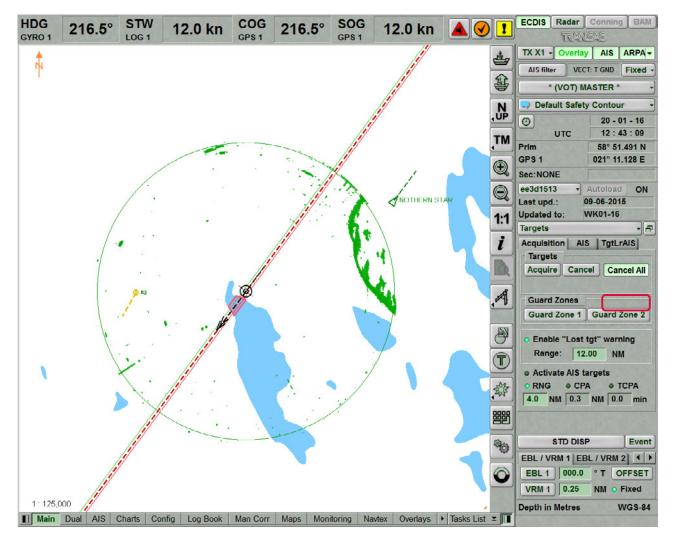


Position the cursor on the tracked target and press the left trackball button. The target tracking will be cancelled.



If you press the right trackball button, the cursor exits from the tracking cancelling mode.

To cancel tracking of all the previously acquired targets, press **CANCEL ALL** button in Targets group.



For more information see documents: Multi-Functional Display (v. 3.00.340). ECDIS user manual, Chapter 10: 'Handling Radar Information and Target Designation Units' Multi-Functional Display (v. 3.00.340). Functional description, Chapter 8: 'Radar Overlay and Targets'

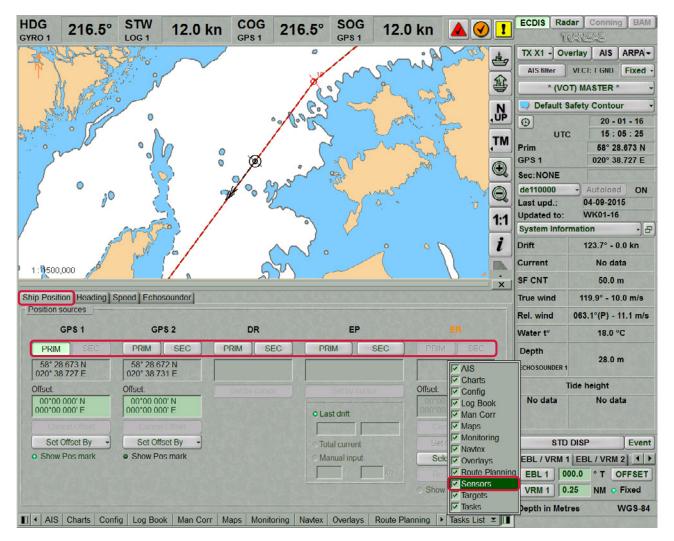
# SELECTING NAVIGATIONAL SENSORS

### **Setting Position Sources**

NOTE: Setting of position sources is available only at station with the status MASTER

Open **SENSORS** panel by selecting the appropriate line of TASKS LIST menu on the **CONTROL** panel.

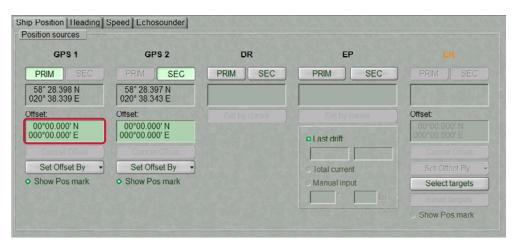
Use the tab in the top part of **SENSORS** panel, which will open up, to switch to **SHIP POSITION** page. **SHIP POSITION** page displays coordinates of all the connected sensors as well as Dead Reckoning (DR), Estimated Position (EP) and Echo Reference (ER) modes. Press **PRIM** and **SEC** buttons in EPFS group to select the primary and secondary positioning systems.



### **Ship Position Correction**

### MANUAL INPUT OF EPFS OFFSET

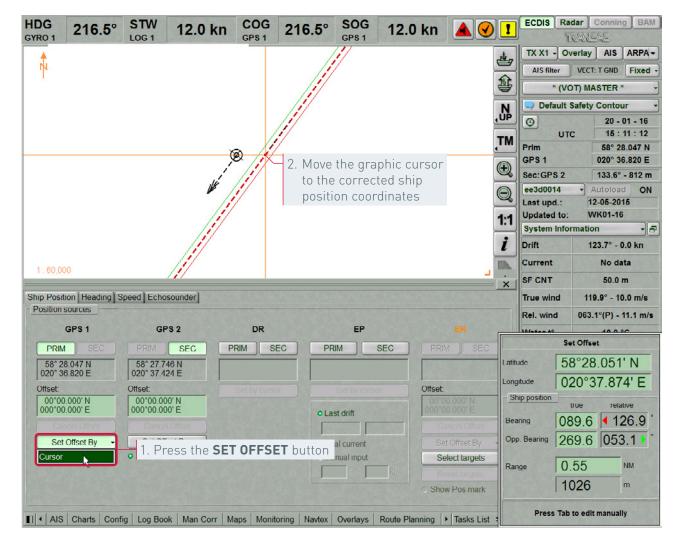
Position the cursor in **OFFSET** window on the minute value and press the left trackball button to activate the window. Enter the coordinate offset and press **ENTER** key.



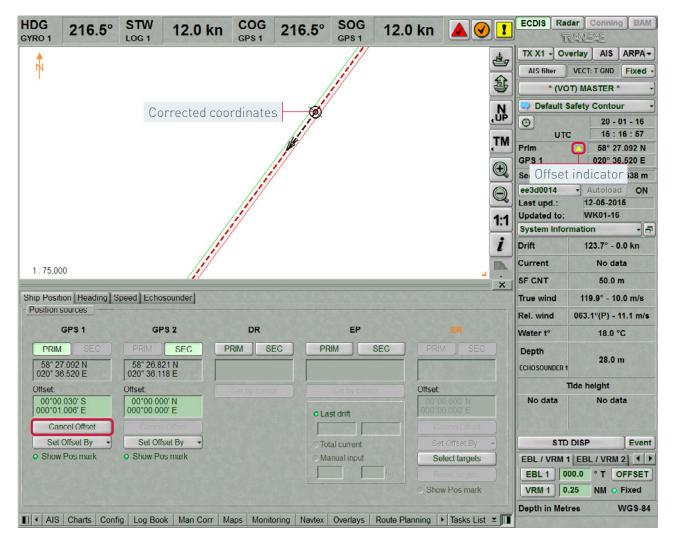
The ship symbol will move to the corrected coordinates, the coordinate offset will be displayed in Offset window.

#### CORRECTION OF SHIP POSITION BY THE ECDIS TASK CURSOR

Press **SET OFFSET BY** button in the position source group and select **CURSOR**. Move the graphic cursor, which will appear, to the corrected ship position coordinates.



Press the left trackball button. The ship symbol will move to the specified coordinates.



The coordinate offset will be shown in **OFFSET** window, whilst position window will display corrected coordinates from position systems.

NOTE: Additional graphic offset indicator  $\triangle$  will be shown in the **PRIMARY POSITIONING SYSTEM** window.

To cancel offset click **CANCEL OFFSET** button.

### **Setting Heading Source**

**NOTE:** Setting of heading sources is available only at station with the status MASTER.

Use the tab in the top part of **SENSORS** panel to switch to **HEADING** page.

GYRO 1	GYRO 2	MAGNETIC	MANUAL
16.5°	216.5°	216.5°	000.0 *
iyro Offset:	Gyro Offset:	Magnetic variation:	
+0.0 °	+0.0 *	+0.0 ° Auto	

**HEADING** page is designed for selection of heading source. **HEADING** page shows all the connected heading sensors. If necessary, enter errors for gyro and variation for magnetic compass.

**NOTE:** Depending on the latitude and speed, gyros requires input of correction. NS 4000 MFD is not capable of tracing input of a correction on the gyro, so the correction is considered to have been entered. The user should check the input of this correction for the NS 4000 MFD correction operation.

### **Setting Speed Sources**

NOTE: Setting of speed sources is available only at station with the status MASTER.

Use the tab in the top part of **SENSORS** panel to switch to **SPEED** page. **SPEED** page is designed for selection of speed source.

DLOG 1	LOG 1	LOG 2	MANU	AL	
12.0 kn	12.0 kn	12.0 kn	0.0 kn		
0 0 kn					
6 sources					
				Set + Drift	
Prim POSN: GPS 1	DLOG 1	ER		Set + Drift	
Prim POSN: GPS 1	DLOG 1		12.0 kn	Set Dint	

#### SETTING SPEED SOURCE THROUGH THE WATER

STW sources group is designed for selection a source of speed through the water. The group shows all the connected speed through the water sensors.

DLOG 1	LOG 1	LOG 2	MANU	AL		
▲ 12.0 kn	12.0 kn	12.0 kn	0.0 kn			
0 0 kn						
OG sources	2.1 4 6 7 6 7					
			_			
	DLOC 1	ED	125		125 1250	
Prim POSN: GPS 1	DLOG 1	ER		Set + Drift		
GPS 1	DLOG 1	ER	12.0 kn	Set + Drift	•	
		ER Select targets	12.0 kn	_	kn	

#### SETTING SPEED SOURCE OVER THE GROUND

SOG sources group is designed for selection a source of speed over ground. The group shows all the connected speed over ground sensors.

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## **Setting Depth Source**

**NOTE:** Setting of depth sources is available only at station with the status MASTER.

Use the tab in the top part of **SENSORS** panel to switch to **ECHOSOUNDER** page.

CHOSOUNDER 1	ECHOSOUNDER 2
28.0 m	27.8 m
Ship's draught	Ship's draught
0.0 m	0.0 m

**ECHOSOUNDER** page is designed for selection of depth source. **ECHOSOUNDER** page shows all the connected depth sensors.

# ABBREVIATIONS USED IN THE USER INTEFACE

ABBREVIATION	FULL NAME
AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aid
BRG	Bearing
BWOL	Bearing to Wheel Over Line
BWW	Bearing Waypoint to Waypoint
CUP	Course Up
COG	Course Over Ground
СРА	Closest Point of Approach
DIST	Distance
DR	Dead Reckoning
DWOL	Distance to Wheel Over Line
ENC	Electronic Navigational Chart
ETA	Estimated Time of Arrival
EBL	Electronic Bearing Line
EP	Estimated Position
ER	Echo Reference
ECHO	Echosounder
GLO (DGLO)	Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System)
GLONASS (DGLONASS)	Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System)
GPS (DGPS)	Global Positioning System (Differential Global Positioning System)
GYRO	Gyrocompass
GZ	Guard Zone
HUP	Head Up
HDG	Heading
LOG (DLOG)	Log (Doppler Log)
LOP	Line Of Position
NUP	North Up
POSN	Position
PS	Positioning System
РТА	Planning Time of Arrival
RAD	Radius
R	Range LOP's
RM	Relative Motion
RNG	Range
ROT	Rate Of Turn
SOG	Speed Over Ground
STD	Standard
STG	Speed To Go
STW	Speed Through the Water
ТСРА	Time to Closest Point of Approach
ТМ	True Motion
TTG	Time To Go
V	Visual Bearing LOP's
VR	Visual/Range LOP's
VRM	Variable Range Marker
WPT	Way Point
XTD	Cross Track Distance

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