

**Switching the Chart and the Chart Objects On/Off**

**Selection: Vector Chart / Raster Chart**

The following settings are made in the ECDIS mode and at all units operating in Chart mode within the **CHART** menu: Click on the **CHART** button (X).

**Switching the display of the chart on/off:** In the **CHART** menu, click on the **CHART** button (C).

**Switching the display of the User Chart Objects on/off:** Click on the **USER CHART OBJECTS** button (S).

**Switching the display of the AIS Aids-to-Navigation on/off:** Click on the **AIS AIDS-TO-NAV** button (T).

**Selecting the chart type:** Click on the **TYPE** field (R) and then select the type. Raster charts are chosen with **ARCS**, vector charts with all other types.

**Settings for the Vector Chart and the Chart Objects**

Some of the following settings are made in the **CHART** menu (which opens after the **CHART** button (X) is clicked), but all others are made in the **CHART SETTINGS** dialogs. **Opening these dialogs:** Click on the **CHART** button (X), click on **CHART SETTINGS** (Z) with MORE, select the dialog. **Switching over between these dialogs:** After clicking on the dialog name.

**Background areas**

Only in Chart mode: **Coloured or with grid pattern** (in ECDIS mode always coloured): In the **CHART** menu with the **AREAS FILLED** button (U) (on = coloured area, off = non-navigable areas are marked with a grid pattern.)

**Marking non-navigable areas with a grid pattern** (in Chart mode and ECDIS mode): In the **VISIBILITY OPTIONS** dialog, switch on the **SHALLOW WATER PATTERN** function.

**Selecting the objects to be displayed**

**Category (coarse selection):** In the **VISIBILITY SETTINGS** dialog, select one of the standardized categories (**BASE**, **STANDARD**, **ALL**) of the display groups in the **CATEGORY** field. If necessary, add or remove individual display groups in the **VISIBILITY GROUPS** dialog by clicking on them.

After the removal or addition of display groups, a - or + is shown additionally in the **CATEGORY** field.

**Resetting to the standardized selection of display groups for the chosen category:** Click on the **CATEGORY** field and select the same category (supplemented by (DEF)).

**Defining the display of texts:** In the **CHART** menu, in the **TEXT LABELS** field (T) (at **RADARPILOT** and **CHARTRADAR**: with the **TEXT LABEL** button).

**Also show objects only intended for charts with a larger scale:** In the **VISIBILITY OPTIONS** dialog, switch on the **IGNORE SCALE MINIMUM** function.

**Suppressing time-dependent objects:** In the **VISIBILITY SETTINGS** dialog, in the field **DATE DEPENDENT OBJECTS (WITHIN EFFECTIVE DATES)** = objects are displayed only during the time periods entered in the chart data.

**Show the sectors and ranges of the lights:** In the **VISIBILITY OPTIONS** dialog, switch on the **FULL LIGHT SECTOR** function.

**Show light descriptions:** Only if the display of texts is switched on: In the **VISIBILITY OPTIONS** dialog, switch on the **LIGHT DESCRIPTIONS** function.

**Show isolated dangers situated in shallow water:** In the **VISIBILITY OPTIONS** dialog, switch on the **SHALLOW WATER DANGERS** function.

**Defining the form and type of presentation**

**Form of the symbols:** In the **VISIBILITY SETTINGS** dialog (at the **RADARPILOT**: in the **CHART** menu) using the **SYMBOLS** field.

**Show symbols of special area objects:** In the **VISIBILITY SETTINGS** dialog, in the **AREAS** field choose **SYMBOLIZED**.

**Marking of objects of the chart type ENC that were changed by official updates:** In the **VISIBILITY SETTINGS** dialog, in the **HIGHLIGHT OFF. UPDATES** field (LAST = mark only the objects changed by the last update).

**Marking of objects for which additional information is available in the INFO window:** In the **VISIBILITY OPTIONS** dialog, switch on the **EXTRA INFO SYMBOLS** function.

**Defining the presentation of the depth areas and contour**

All settings are made in the **DEPTH CONTOUR** dialog by entering the values in the appropriate fields. They can be entered at any **CHARTPILOT** or **MULTIPILOT** unit, depth values are distributed system-wide. The **safety contour** denotes the boundary between the navigable and non-navigable areas.

The correct setting of the safety contour is particularly important because it forms a basis for chart monitoring.

If the **DEPTH SHADES** field is set to **FOUR**, the non-navigable area is divided by the **shallow contour** and the navigable area by the **deep contour** into two areas with different colours in each case.

Depth values contained in the chart that are less than the **safety depth** are marked in a prominent way.

**Show depth values of the depth contours:** In the field **CONTOUR LABELS**.

**Settings of the Raster Charts**

These settings are made in the **CHART SETTINGS** dialog **RASTER CHART OPTIONS**. **Opening the dialog:** Click on the **CHART** button (X), click on **CHART SETTINGS** (Z) with MORE, then click on **RASTER CHART OPTIONS** (with DO).

**Marking the chart regions which are not active:** If the **SHADE NON-ACTIVE AREAS** function is switched on in the case of a chart which has several regions (e.g. harbour plans), then the regions which currently do not contain the own ship are shaded.

**Marking of changed areas:** Switch on the **UPDATED CHART REGIONS** function.

**Automatically selecting the chart with the largest scale for the region situated ahead of the own ship:** Switch on the **AUTO SCALE** function.

**Brilliance, Colour (W)**

**Fine adjustment:** Should be performed for correct chart presentation so that the two concentric squares in the **BRILLIANCE** menu can only just be distinguished from each other.

**Resetting the chart settings to standard values:** Click on the initially minimized **STD DISPLAY** button.

**ECDIS Mode**

**2nd CHART Window (B)**

In the 2nd CHART window, another chart can be seen.

**Opening the 2nd CHART window:** With MORE, click in the PPI on the position which is initially intended to be the center position of the 2nd chart, and then (with DO) click on **2nd CHART**.

**Changing the size or position of the window:** As usual for PCs (click on the frame (i) or in the headline (k) and then drag).

**Storing the window settings:** Click with MORE into the 2nd CHART window, click on **SAVE WINDOW GEOMETRY** (with DO) (can be reset using **DEFAULT WINDOW GEOMETRY**).

**Closing the window:** Move the cursor to the minimized rectangle at the bottom right, and then click on the **CLOSE** button (f) which appears.

The buttons for the following settings appear when the initially minimized **MORE** button (i) at the top left is clicked.

**Specifying the chart type, orientation and range/scale:** As for the chart area.

**Taking over into the 2nd chart the chart settings of the chart area that were made after the 2nd chart was opened:** Manually by clicking on **REFRESH**, or continuously after switching on the **AUTO** function.

**Specifying the center position by entering the geographical coordinates:** Click on the **LAT** field (E) and enter the coordinates.

**Moving the center position graphically:** Click on the initially minimized **MOVE CHART** button (F) at the top right. Click into the 2nd chart, reposition the cursor, and then click again. If necessary, repeat the procedure. Ending the function: Click on the **MOVE CHART** button again, or automatically after about 7 seconds.

If the cursor is located on the 2nd chart, the cursor position is shown at the top right (E), otherwise the center position of the 2nd chart is shown.

If **INFO** (D) appears next to the **LON** field: Information is displayed after **INFO** is clicked.

In the 2nd CHART window, the **INFO** window and a measurement line are provided: Click into the 2nd chart with MORE, then proceed as for the chart area.

**INFO Window**

**Opening the INFO window:** Using MORE, click on the position for which the information is needed and then select **INFO WINDOW**.

The clicked position is marked by a circle in the chart area.

**Changing the size and position of the window, saving the window settings, closing the window:** See 2nd CHART window.

**Available from the INFO window:**

Info on tracks, User Chart Objects, event markers, position fixes, in addition: **With vector charts:** Info on all objects, on the chart, legend on the symbols used

**With raster charts:** Notes and diagrams, Notices to Mariners, info about chart

**Content of the INFO window**

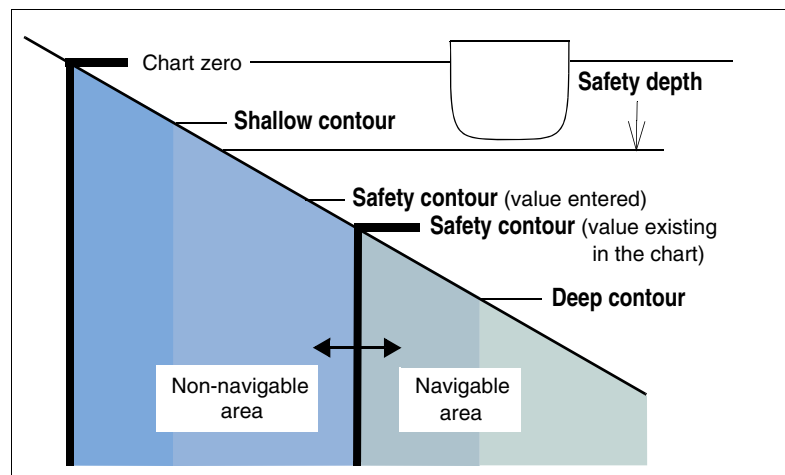
The **left-hand column** is the list of contents (n); after clicking on an entry, the details are shown in the **right-hand column**.

For all **coloured entries** (also in the right-hand column (r)), further information is shown when they are clicked.

Operating of the **scroll bars** (q) as usual with PCs.

**Info on the objects:** Items of information are listed for all objects located at the clicked position (even if they are not displayed).

**With vector charts: Calling up the legend for the symbols used:** See the Operating Instructions.



**Chart Status Box (A)**

Constant display of the most important chart data. The upper row can be operated (as in the **CHART** menu).

Another status display is provided in the lower right corner (a). This can also be operated and is available in the Chart mode too.

**Button in the Corners of the Chart Area**

The buttons located in the lower corners and in the upper right corner for the Radar and Chart modes can be shown or suppressed in the ECDIS mode:

**Showing:** Move the cursor into the chart area and click on the **MORE** button initially displayed there in miniaturized form at the corner (e.g. (e)).

**Suppressing:** Click on the symbol (X) now opened in the corner area.

**Past Tracks (d)**

The past track shows position plots of the own ship on the basis of the selected position sensor. The 2nd past track of the own ship is generated from a different position sensor that is defined for this purpose.

All settings are made in the **PAST TRACK SETTINGS** dialog: Click on **MENU** (Y), **DISPLAY SETTINGS**, and then **PAST TRK**.

**Switching the past track and 2nd past track on/off:** Use the buttons **PAST TRK** and **2nd PAST TRK**.

**Setting the length of both tracks:** Click on the **LENGTH** field and enter the value.

**Setting the interval between the time labels for the past track:** Click on the **TIME LABELS** field and enter the value (2nd past track has no time labels).

**Setting the position sensor for 2nd past track:** Click on the **2nd POSITION SENSOR** field and select the sensor.

**Resetting the length of both tracks to zero:** Click on **RESET**.

# Brief Operating Instructions Chart, ECDIS, Conning Functions

on the Radar 1100 Series and on the CONNINGPILOT 1100

**WARNING: Observe safety precautions - see Operating Instructions.**



## Scope:

This document describes the **use of electronic charts ("charts")** at the **CHARTRADAR 1100** and **MULTIPILOT 1100**, the **ECDIS functions** of the **MULTIPILOT 1100** as well as the special features of the ECDIS mode with regard to the **RADAR, ARPA and AIS functions**. In addition, it also explains the operating sequences of the **conning display** functions, available on the **CONNINGPILOT 1100**, on the **CHARTRADAR 1100** and on the **MULTIPILOT 1100**.

**General info on operating:** See the Brief Operating Instructions *Radar, ARPA, AIS Functions*.

## General

### Databases of the Charts

Charts are stored in the **CHARTPILOT 1100** and in the **MULTIPILOT** in redundant form. Both databases are regularly updated by operating actions performed at the **CHARTPILOT** - see Brief Operating Instructions *CHARTPILOT 1100*. The **CHARTRADAR** receives its chart data from the **CHARTPILOT**.

### Chart Types

In the case of **vector charts**, the objects (symbols, areas, lines, texts) are stored individually in electronic form, together with their geographical positions and the associated information. At the units mentioned, the vector chart types **ENC** (official charts issued by the national hydrographic organizations), **CM-93/2** and **CM-93/3Pro** (issued by the company C-MAP) and **OWN** (created at the **CHARTPILOT**) can be used.

**Raster charts** are paper charts that have been scanned; here the program recognizes no objects, only the colour values of the individual pixels. At the **MULTIPILOT** and at the **CHARTPILOT**, raster charts of the type **ARCS** (issued by UKHO) can be used.

### Display Modes for Use of the Charts

In the **Chart mode** of the **CHARTRADAR** and in the **Chart Radar mode** of the **MULTIPILOT**, vector charts can be displayed in the PPI.

➤ The **Chart Radar mode** of the **MULTIPILOT** corresponds to the **Chart mode** of the **CHARTRADAR**; only a few functions specific to the **MULTIPILOT** are available in addition.

In the **ECDIS mode** of the **MULTIPILOT**, the PPI is covered up by the square chart area. In addition to vector charts, raster charts can also be displayed there. Within the area of the PPI, all functions of the **Chart Radar mode** remain available. Exceptions: a) Other colour of the radar video, b) no radar video possible together with raster charts.

Other functionalities of the ECDIS mode: In the **INFO window**, details of the charts and of the chart objects of the vector charts can be called up. In the **2nd CHART window**, a second chart can be displayed independently of the own position.

➤ In the chart area of the ECDIS mode, some functions of the **Chart mode** are not available outside the PPI. A reference to this is made in the text.

### ECDIS Functions

Of the ECDIS functions available at the **MULTIPILOT**, the following are described in these Brief Operating Instructions:

- Settings and use of the chart in the ECDIS mode,
- monitoring of the voyage with the aid of the track monitoring and chart monitoring functions.

For the other ECDIS functions of the **MULTIPILOT** (e.g. recording of the voyage data, route planning), see the Operating Instructions.

### User Chart Objects

User Chart Objects (symbols, lines, areas, texts) can be edited at the **MULTIPILOT** and at the **CHARTPILOT**. The data are stored with redundancy at all **MULTIPILOT** and **CHARTPILOT** units.

They can be displayed at the **RADARPILOT** and at the **CHARTRADAR** in **Chart mode** and at the **MULTIPILOT** in **Chart Radar mode** and in the **ECDIS mode**, also together with all chart types.

➤ Some object types are also registered by the chart monitoring. This makes the chart monitoring also possible when raster charts are used.

### Nomenclature

In the following, **Chart mode** stands for the **Chart mode** of the **CHARTRADAR** and for the **Chart Radar mode** of the **MULTIPILOT**. Any distinctions are pointed out.

However, it is not explicitly pointed out that the **ECDIS mode** is only available at the **MULTIPILOT** and that the **chart area** only exists in the ECDIS mode. The term **PPI** also refers to the PPI area of the ECDIS mode (i.e. the circular area that is located within the chart area and can be marked by means of the bearing scale).

## Brief Operating Instructions

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## Switching Over between Radar Mode, Chart Radar Mode and ECDIS Mode

The switch-over is performed by means of the **RADAR MODE** and **CHART MODE** buttons or, after clicking on the **MENU** button (Y), with the buttons of the same name. In the **Radar** or **Conning mode**, **CHART MODE** at the **MULTIPILOT** switches the unit to the **Chart Radar mode** or to **ECDIS mode**, depending on which was activated last. After that, **CHART MODE** switches between these two latter modes. For switching on the **Conning mode**: see below.

## RADAR, ARPA, AIS in ECDIS Mode

With regard to these functions, the ECDIS mode largely corresponds to the **Radar mode** (and the **Chart mode**); see the Brief Operating Instructions *Radar, ARPA, AIS Functions*. In the following, only the special features of the ECDIS mode are presented.

### Radar Functions

#### Radar Function On/Off, Interswitch, Master/Slave

**Settings not possible in ECDIS mode;** it is necessary to switch over to **Chart mode** or **Radar mode**.

**Radar video**, can only be displayed within the PPI:

**Setting the video:** With the aid of the radar keyboard, or after switching over to the **Chart mode** or **Radar mode**.

**Vector chart selected:**

**Switching the video on/off:** In ECDIS mode, the **VIDEO OFF** button (J) becomes the **VIDEO** button. It can be used to switch the video display off for a long period.

➤ With the **VIDEO OFF key**, the video can also be suppressed briefly in the ECDIS mode.

**Special features in the 96 NM range:** The video can only be displayed if the own ship is located at the centre of the PPI. For this reason, the settings **VIDEO ON**, **TM/RM** and **Center/Off Center** affect each other.

**In the ranges > 96 NM:** No video display

➤ If the video is automatically switched off through the switch-over, then if needed in some cases it must be switched on manually when the video display is possible again.

**Raster chart selected:** No video display

#### Range / Scale (H)

**Step-by-step switch-over (vector and raster charts):** With the arrow buttons, as in **Radar mode**

**Vector chart selected:**

**Additional ranges:** 200 NM, 400 NM and 800 NM

**Direct switch-over:** As in **Radar mode** (click on **RANGE** field with **MORE**), where:

**Display of availability:** The areas for which chart data are available are marked with \*.

**Raster chart selected:**

The range is switched over through selection of the chart.

When activating the chart type **ARCS**, the **RANGE** field becomes the **SCALE** field.

**Direct switch-over:** As in **Radar mode** (click on **RANGE** field with **MORE**), where:

Display of availability:

\* = chart available,

- = licence exists, but chart is missing from the database

No entry = no licence and no chart

**Info about the chart:** The chart number is displayed; further info is provided when the cursor is allowed to dwell on the menu bar.

**Magnifying the raster chart by a factor of 2:** Click on the **RANGE** field with **MORE**, then click on **ZOOM IN** (with **DO**).

## Conning-Displays

**Switching the conning display on/off:** In the **Radar**, **Chart Radar** or **ECDIS mode**, the **CONN MODE** key (or the **CONN MODE** button after clicking the **MENU** Button (Y)) switches on the conning display selected last. Then **CONN MODE** switches between the available conning displays.

**Alternative switch-over (the only possibility at the CONNINGPILOT):** Click on the **Conning Display** button (i.e. the one bearing the name of the display).

**Selecting the three individual displays:** Move the cursor into the corresponding individual display and click on the initially minimized **OTHER** button in the upper left-hand corner.

**Harbour display, Open Sea display, Manoeuvre display**

**Switching over the scale of the ROT display:** Click on the **ROT** button.

**Docking display:** (only at the **MULTIPILOT** and at the **CONNINGPILOT**)

All settings are made in the **DOCKING DISPLAY** menu (to be opened with the **CONN** button (X)).

**Switching the display of the elements on/off:** With the **ROT**, **HEADING**, **PREDICTION**, **HISTORY** and **RUDDER** buttons.

**Prediction / history time:** In the field with the same name, choose the period for which the last 10 ship positions are to be displayed.

**Displaying the quay alignment:** With the **DOCKING DIRECTION** button, the quay alignment that was entered can be shown in the heading scale with a red line.

**Entering the quay alignment:** As a numerical value: In the field **DOCKING DIRECTION**. By taking over the current heading or the last leg of the System Track: Using **MORE**, click on the field **DOCKING DIRECTION** and select **TAKE HEADING** or **TAKE TRACK**.

**Rotating the orientation of the entire display to account for monitor arrangement (e.g. on the bridge wings):** Use the **ORIENTATION** button.

**Clearance display:** (only at the **MULTIPILOT** and at the **CONNINGPILOT**).

**Entering the draught:** Entering the draught: In the fields **DRAUGHT AFT** and **FORE**. Entries are only possible if no relevant sensors are connected. The settings can be made at any **MULTIPILOT** or **CHARTPILOT** (not at the **CONNINGPILOT**). Values are distributed and updated system-wide.

**Selecting the depth scale:** After clicking on the depth scale.

### True Motion / Relative Motion, PPI / Chart Area Orientation (C)

As in **Radar mode**. Special features: If raster chart is selected, the orientation is defined by the chart (normally **N UP**, otherwise display is **ChUP** = Chart-Up).

Own Ship and Target Symbols, Video Trails

**As in Radar mode**, only within the PPI. **Special features:**

**Own ship symbol without past plot**, past tracks is available instead; see page 2.

**Heading line can be switched off temporarily:** Click on **MENU** (Y), **DISPLAY SETTINGS**, and then **HDG LINE**.

**Raster chart selected:** No display of the video trails

### CCRP/CCRS (G)

**REF CON:** The Consistent Common Reference Point is the Conning Position on the bridge. All relative measurements (**VRM**, **EBL**, **TCPA**, **CPA**, target data, bearings and ranges) refer to the selected reference point.

**REF RADAR:** The CCRP is the position of the selected radar antenna. All relative measurements (**VRM**, **EBL**, **TCPA**, **CPA**, target data, bearings and ranges) refer to the selected reference point. See oper. instr. for details.

### Measurement Aids

#### Range Rings, Grid

**Vector chart selected:** As in **Radar mode**, range rings only within the PPI.

**Raster chart selected:** No display of rings and grid

#### Bearing Scale (G), Scale Bar (H)

**Bearing scale can be switched off:** Click on **MENU** (Y), **DISPLAY SETTINGS**, then switch the display of the bearing scale on/off with **BRG SCALE**.

**Vector chart selected:**

A **scale bar** can be displayed at the left-hand edge of the screen.

**Switching the scale bar on/off:** Click on **CHART** (X), click on **CHART SETTINGS** (Z) with **MORE**, click on **VISIBILITY OPTIONS** and than on **SCALE BAR** (with **DO**).

**Length/subdivisions of the scale bar:**

Up to 3 NM range: 1 NM / 0.1 NM; larger ranges: 10 NM / 2 NM

**Raster chart selected:** No display of the scale bar

### VRM, EBL, Measurement Lines, Parallel Index Lines

As in **Radar mode**, only within the PPI.

### ARPA and AIS Functions

**ARPA and AIS Targets, AIS Functions, Display of the Target Data, Target IDs, Collision Avoidance (TCPA, CPA)**

As in **Radar mode**. **Automatic target acquisition takes place also when the video display is switched off.**

**CAUTION:** In the chart area, the tracked targets located outside of the PPI are not displayed.