Synapsis ECDIS

Electronic Chart Display and Information System

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Enhanced Functionalities for Safe and Comfortable Navigation

The Raytheon Anschütz Synapsis ECDIS is a high performance Electronic Chart Display and Information System. It provides all needed information and offers helpful functions which account for the safety at sea and also disburden the ship's command in its long ranged business.

Synapsis ECDIS is based on clear display design, easy-to-operate menu structures and comfortable server functionalities. The comprehensible and intuitive handling is supported by the use of the well-known menu structure of Windows applications.

Synapsis ECDIS provides intelligent functions which outrun the basic IMO requirements. The ECDIS offers, in interaction with other bridge navigation systems, effective support for the ship's safe and convenient navigation.

In addition to IHO/IMO compliant vector Electronic Navigation Charts (ENC), Synapsis ECDIS also displays raster charts (ARCS). Synapsis ECDIS complies with latest requirements such as IEC/EN 61174 (Performance Standards for ECDIS), IEC/EN 61162-1, IEC/EN 60945, MED 96/998/EC (Wheelmark) and other relevant standards of IMO, IHO and IEC.

The Raytheon Anschütz worldwide sales and service network ensures qualified product und service support wherever needed at any time.

Chart formats / availability

- C-Map ENC (paper chart equivalence)
- C-Map Professional +

- S 57/S 63 Encrypted ENC

- DNC

- ARCS

⏩ Your Benefit®

- Automatic selection of navigational charts relative to position with both ENC and ARCS charts
- Selectable information panel with various Conning data
- Chart Server / Route Server: Automatic sharing of charts, updates and routes in multiple ECDIS systems
- AIS-Server function
- Route planning and graphical display
- Route monitoring and look ahead zones
- Graphic display of heading change manoeuvres
- Display of track data information
- Display of radar information (tracked ARPA targets)
- Recording and output of relevant voyage information (black-box function) in accordance to IMO Performance Standard
- Online Operator Training acc. to STCW
- Optional integrated Weather Charts
- Optional Autopilot Remote Control
- Curved heading line with NautoPilot® NP 5000 (Full Turn)

ECDIS Standard Display
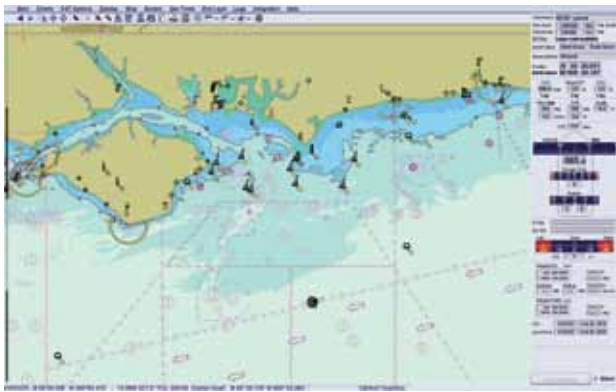
Paperless Navigation

The ECDIS is an essential part of a modern Integrated Bridge and Navigation System. The ECDIS is to:
· Increase safety through planning of safe routes and route monitoring
· Enhance overall situation awareness by combination of all voyage related information
· Offer effectively support in decision making for the navigator and simplify watch keeping

To fit out a vessel with two ECDIS offers, depending on the flag state and the area of operation, the benefit of paperless navigation. This means:
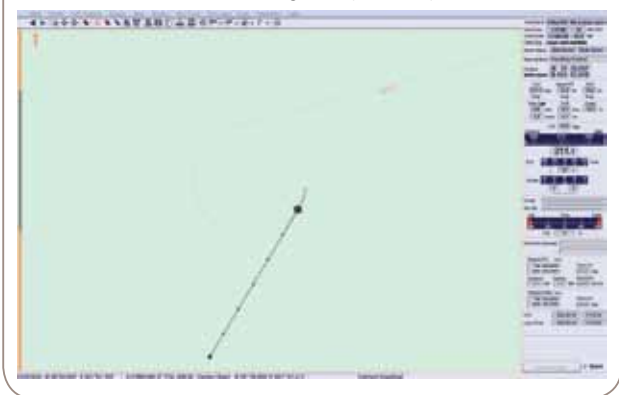· Save money without paper charts
· Save overtime and manual corrections
· Avoid trouble with port state control and delays

ECDIS with Curved Heading Line (Full Turn)

Online Operator Training

Navigators need to get a manufacturer-specifc ECDIS training before going on board - this often leads to logistic challenges and high spendings for shipowners and navigators. Raytheon Anschütz offers their customers complete manufacturer-specific Online Operator Training according to STCW at a very cost-efficent level . Navigators can carry out the training at any time via any Internet connection and obtain the necessary certificate before they go on board ship. Logistic workload and costs are reduced to a minimum.
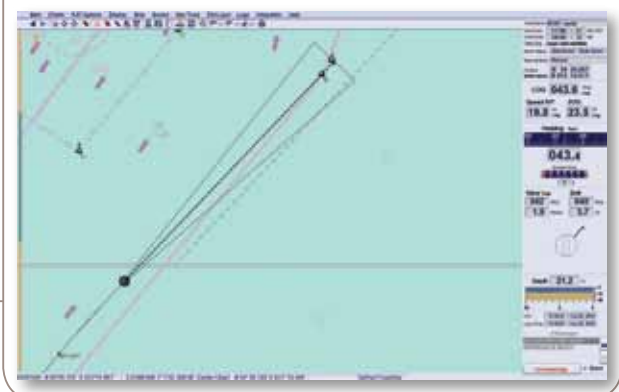
Own Ship Symbol HiRes Outline
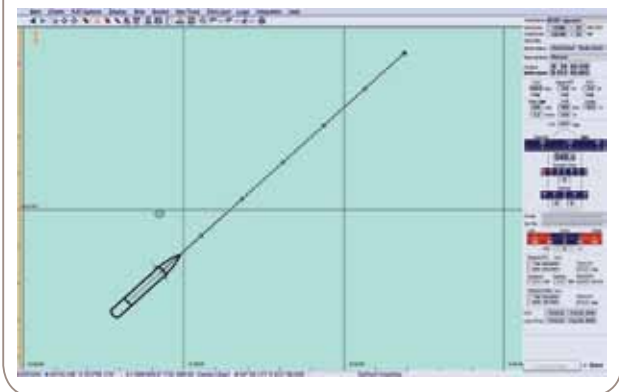
Lookahead Zone

Synapsis ECDIS Advanced Functions

Ease of Use and Color Palettes
Synapsis ECDIS features clearly arranged functions within an intuitive to operate HMI. For optimized readability under all prevalent lighting conditions, five different ranges of color are available to contribute to safe operation.

Online Updating Service
Work and time can be saved by taking advantage of the Synapsis ECDIS online updating service for C-Map charts. Connected to the ship's broadband, the chart update will only take two minutes.

Automatic Route Planning
(using C-Map Professional + Database)
The Automatic Route Planning reduces workload and saves time. It will only need a handful of click to plan a safe route. Individual settings such as included or excluded sea areas or passages can always be included.

Autopilot Control Function
Autopilot remote control is available to enable the changing the course of the ship while watching the ECDIS screen. On the screen the course change is displayed as a "curved heading line". Immediate override of autopilot is possible.

ETA Displays
The ECDIS features a simplified display and calculation of ETA for different waypoints as defined by the operator.

AIS Target Integration
With an easy-operate toolbar button all relevant AIS information of other vessels can be displayed on the ECDIS. This offers total awareness with only one mouse-click.

AIS Operation and Text Messaging
User inputs such as voyage related data and the navigational status of the own ship can be edited on ECDIS screen. No separate data input on the AIS is necessary.

Navtex Integration
Current Navtex messages can be displayed on the ECDIS screen to further enhance situational awareness. Printing of messages is possible, thus separate Navtex printers are no longer needed.

Tidal Prediction Mode
The ECDIS provides an integrated tidal calendar to display relevant tidal information for various ports round the world.

Highly Precise Track Control
Precise steering algorithms of Anschütz NautoPilots ensure highest accuracy. It only takes two clicks and the vessel will steer along a pre-planned track automatically. Track Control of Category B is possible with NP 2015 / 2025 / 5100 / 5300; Track Control of Category C is possible with NP 2025 Plus / 2035 / 5400 / 5500.

ECDIS Dusk Colors
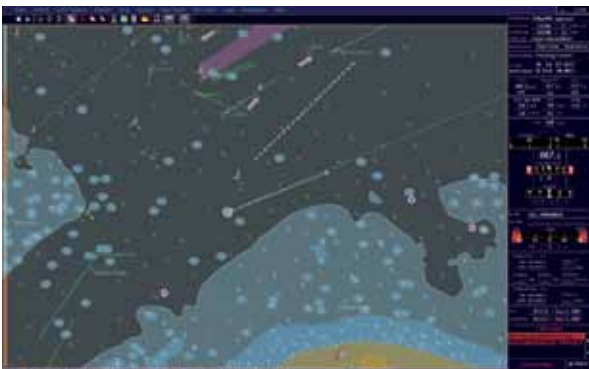
Automatic Route Planning

Synapsis ECDIS Options

Weather Chart Overlay (option)

The integrated Weather Overlay combines sea chart and weather chart in one display to optimize route planning with regard to fuel-efficiency, safety, on-time arrivals and travel comfort. Featured weather parameters include the mean wind with direction and speed as well as gusts, wave height, wave direction and swell, period intervals of waves and swell, current, air pressure, weather conditions and air temperature. The parameter are presented as values or symbols on a separate layer and can be switched on and off by the operator as needed. If individual weather forecast values exceed the preset limits, the values are shown graphically as weather warnings.

Synapsis ECDIS imports the weather data via a standardized GRIB-file from a weather data provider by owner's choice. Raytheon Anschütz recommends the subscription to Wetter-Welt weather forecast services. Data packages of professional providers such as WetterWelt contain complete sea weather information at a compact file size. The data can be imported into the ECDIS by download or email either directly or via a USB-Stick.

Radar Image Overlay (option)

An overlay of radar video on the ECDIS screen is available to increase safety and efficiency of ship operation. Chart information and radar targets appear in one display with just one mouse-click on a toolbar button.
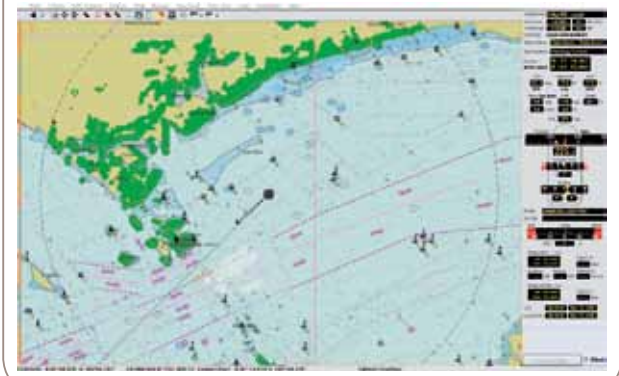
Tender Tracking Function (option)

A Tender Tracking module is available for integration into the ECDIS. Tender boats send encoded signals with navigational data which are processed and displayed on the ECDIS screen.
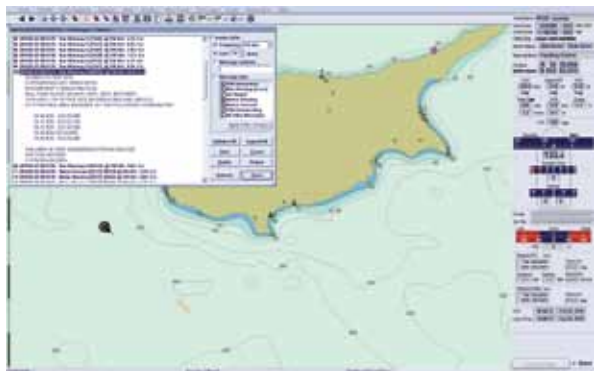
Weather Charts

Radar Image Overlay

NavTex

Track Control

New ECDIS Carriage Requirements

Passenger Ships

Ship size l Constructed	Less than 500 gt	500 gt or more
Before 1 July 2012	No ECDIS required!	ECDIS required from 1st survey, latest 1 July 2014
On or after 1 July 2012	No ECDIS required!	ECDIS required from 1 July 2012

Tankers

| Ship size l Constructed	Less than 3,000 gt	3,000 gt or more
Before 1 July 2012	No ECDIS required!	ECDIS required from 1st survey, latest 1 July 2015
On or after 1 July 2012	No ECDIS required!	ECDIS required from 1 July 2012

Cargo Ships, other than Tankers

Ship size l Constructed	Less than 3,000 gt	3,000 gt to 10,000 gt	10,000 gt to 20,000 gt	20,000 gt to 50,000 gt	50,000 gt or more
Before 1 July 2013	No ECDIS required!	No ECDIS required!	ECDIS required from 1st survey, latest 1 July 2018	ECDIS required from 1st survey, latest 1 July 2017	ECDIS required from 1st survey, latest 1 July 2016
On or after 1 July 2013	No ECDIS required!	No ECDIS required!	ECDIS required from 1 July 2013	ECDIS required from 1 July 2013	ECDIS required from 1 July 2013
On or after 1 July 2014	No ECDIS required!	ECDIS required from 1 July 2014	ECDIS required, see above	ECDIS required, see above	ECDIS required, see above

System Integration

Synapsis ECDIS interfaces with many existing bridge systems and navigation equipment. It can be configured for integration with ARPA radar, autopilot, AIS, echo sounder, speed log, wind speed direction sensor, position receivers and engine rpm sensors. Thus Synapsis ECDIS is able to display navigational sensor data and corresponding alarms.

- **AIS** (Automatic Identification System)
  Display of AIS targets, additional information to provide a better overview of traffic situation
- **ECDIS/GPS**
  Display route coming from ECDIS/GPS
- **ARCP-Panel** (Autopilot Remote Control Panel)
  Autopilot operation directly from radar workplace
- **Synapsis Conning**

- **SENC-Data** (System Electronic Navigation Chart-Data)
  Input of selected chart symbols from Raytheon Anschütz Synapsis ECDIS
- **Synapsis Integrated Navigation System**
  (IMO type-approved)
- **LAN**
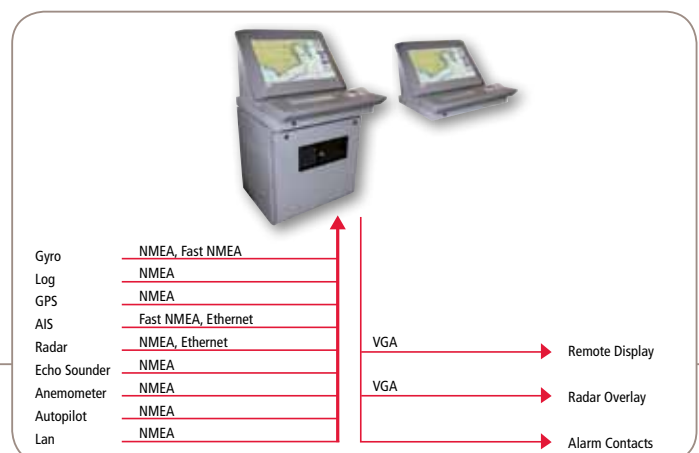
Conning Compact

As an alternative to a full Conning display, Raytheon Anschütz offers a one-page Conning Compact solution as an accessory of Synapsis ECDIS. A separate TFT flat screen display offers all relevant navigation data such as heading, position, rudder, speed, depth, wind or track data at a glance, contributing to increased awareness of the specific navigation situation within a cost-effective solution. All data and information are shared with ECDIS, requiring only a single wire connection.

Conning Compact Display with Dual Rudder

Multifunction Workstation

Synapsis ECDIS uses the new standardized, ultra-compact Synapsis PC´s with solid-state disk and passive cooling, that were designed to increase reliability. The ECDIS is available as an independent stand-alone system or as part of a Multifunctional Workstation in combination with type-approved (Chart-) Radar and Conning. These functionalities run in parallel on one processor, the selection is possible by a pull-down menu at the right corner of the screen. Having all data visible at a glance reduces stress during watch-keeping and ensures that the navigator can concentrate on main tasks especially in demanding situations. Tailor-made solutions assist the crew in route planning, collision avoidance and track control and therefore enhance navigational safety.

Technical Data

Basic Equipment

Monitor

High resolution TFT-Display,
– Resolution 19": 1280x1024 pixel,
– Resolution 26": 1920x1200 pixel

PC Work Station with

– Intel® microprocessor
– Operating system: Windows 2000™
  Windows XP™ SP3
– Interface PCB: serial Multi-IO board,
– DVD ROM drive
– VGA video output to additional
  remote display

Options

– Remote trackball
– Radar overlay
– Autopilot remote control panel
– System integration via Ethernet

System safety
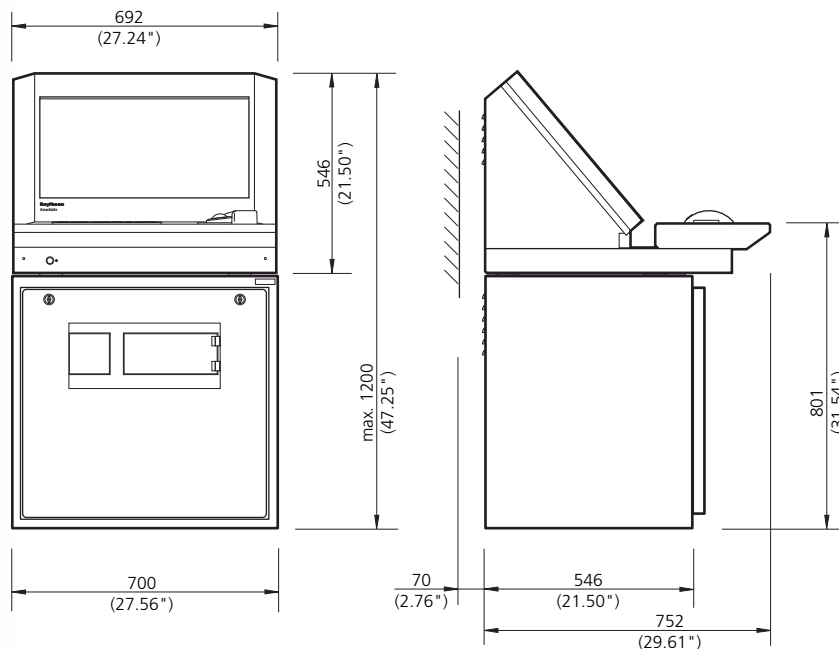
Uninterrupted power supply (UPS)

Available as
Desktop, Table Top or Blackbox version

– for stand alone installation,
– installation at top of a console
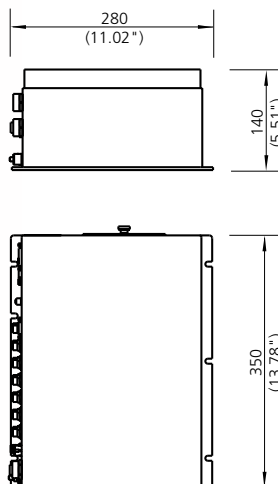– integration into a customer's console

Registered trademarks

Intel®, INTEL Corp.
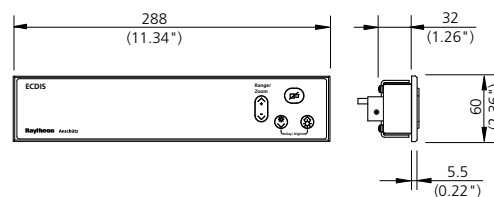Windows 2000™, Windows XP™SP3,
Microsoft Corporation

Synapsis ECDIS w/26" TFT Deckstand approx. 105 kg

ECDIS computer 7 kg

ECDIS operator panel

Trackball