Synapsis Workstation

(Chart-) Radar, ECDIS and Conning by Choice of the Customer

ANSCHÜTZ

Synapsis Workstation

Scalable multifunctional workstations provide all information for reliable, safe and easy operation.

The new generation of task-oriented Synapsis multifunctional workstations offers data access and control in accordance with the requirements of the individual vessel. Possible workplace configurations can range from a stand-alone radar or ECDIS workplace to a full integrated multifunctional workstation proving control of all nautical operation tasks such as collision avoidance, route monitoring, route planning or navigation data and status control.

All applications on the Synapsis workstations use a standardized HMI and provide central and local modes for change of colors and dimmings for all nautical functions. Five color palettes are available for day and night operations. Advanced user setting management contributes simplified and more efficient watchkeeping for the individual operator.

Each Synapsis workstation stores all information independently in order to maintain highest availability of information and flexibility in the bridge system layout. An integrated software framework ensures consistent data handling and data distribution to and from other systems and sensors.

Sensor data are monitored and automatically checked with respect to their validity, plausibility and integrity.

The wide-screen, glass-front TFT monitors of the multifunctional workstations increase space for the presentation of radar video, electronic sea charts, and sensor data, allowing for a clear arrangement of all control functions and status indications.

The workstations can also integrate data and operation of other navigation systems such as autopilot control and curved heading line display, AIS or NAVTEX. Depending on their prevalent nautical task, the crew has available all needed information at a glance, benefits from immediate situation awareness and can control the ship safely from a dedicated workplace.

➡ Your Benefit ⊕

- Full navigation control through "any function, any place"
- Common "look and feel" through a harmonized HMI
- Optimization and consistent use of sensor data
- Central alert management
- Radar with central target management and SeaScout collision avoidance function
- Seamless integration of Anschütz NautoScan NX radar transceivers
- Chart radar function
- Advanced ECDIS route monitoring and anti-grounding
- Integrated AIS and NAVTEX data operation and integrated weather overlays
- Simplified ECDIS automatic route planning and ETA calculator
- Integrated autopilot remote control with curved heading line display
- Track control cat. C with Anschütz autopilots
- Advanced user setting management
- Standardized glass-front displays and Small Marine Computer for optimized performance

Configurations and Hardware

Synapsis workstations are available as a stand-alone system or as part of a multifunctional workstation in combination with type-approved radar, ECDIS and/or conning.

The workstations are based on the innovative and advanced Synapsis NX system architecture. The standardized, ultra-compact Small Marine Computer with fan-less design and solid-state disk in combination with the streamlined sensor collection and distribution of the new NautoPlex data collector combine high reliability and smooth operation with high scalability, flexibility and simplicity in system layout and configuration. Glass-front displays are available in 19" and 26" versions. The range is completed with a trackball and an operator panel. All workstations are available in a deckstand version for stand-alone installations, in a table top for installation at the top of a console or in a black box version for integration into consoles.

As radar sensors we offer a variety of combinations with our newly introduced NautoScan NX network radar transceivers and flat-profile antennas. Please refer to the NautoScan NX brochure for more information.
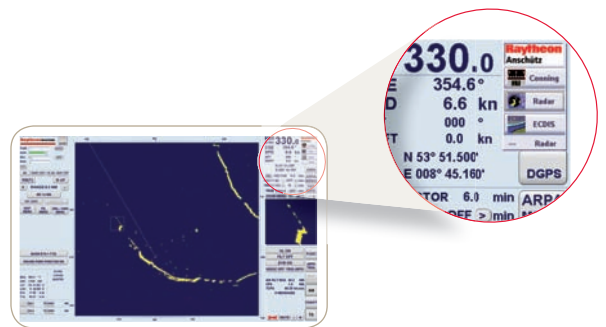
Task-Switcher for Multifunctional Workstations

In a configuration as a multifunctional workstation all functionalities run in parallel on one computer. The selection of a desired task is possible by a pull-down menu at the right corner of the screen. To have all data visible at a glance simplifies watch-keeping and helps the crew in collision avoidance, route monitoring and navigation data control.
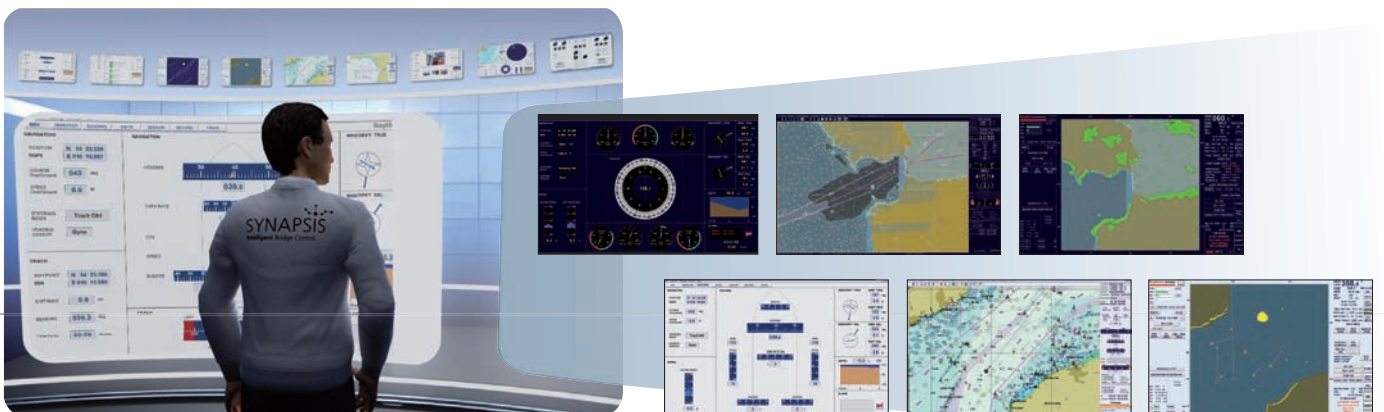
Synapsis Radar

Raytheon Anschütz radars provide advanced technology for efficient collision avoidance and highest standards of safety.

Raytheon Anschütz radars are known to be among the most sensitive navigation radars. Thanks to advanced anti-clutter technology and intelligent functions for target detection and display, our radars offer reliable performance even under rough weather conditions. The Synapsis Radars now feature the new NautoScan NX network radar transceivers. The new transceivers distribute the radar raw video via ethernet to an unlimited number of radar workstations on the bridge (depending on network setup).

Synapsis Radars provide operators with a square radar display to maximize the situational picture and to realize a clearly

structured display of all control functions and status indications. Intelligent functions beyond basic IMO standards, such as the SeaScout collision avoidance function, further increase efficiency in watch keeping and support optimal situation assessment in any operational situation. Of course, Synapsis Radars and Chart Radars comply with latest IMO regulations and requirements (incl. test standard IEC 62388 ED2).

Chart radar
The chart radar function additionally provides sea chart information on the radar screen to simplify interpretation of the radar video and further increase efficiency during watch keeping (e.g. where the ship is located with respect to shore lines, shallow water areas and traffic separation zones).

SeaScout
SeaScout intuitively and efficiently supports the navigator in finding a safe way through traffic and avoiding situations of possible collision. The function analyzes the movement of plotted objects and determines in which areas the danger for a possible collision is exceptionally high. These areas are graphically displayed on the screen.

AIS
AIS targets can be displayed on the radar video, detailed information on targets can be shown on request and alarms for lost or dangerous AIS targets will be generated.

Synapsis Radar

Day and night colors
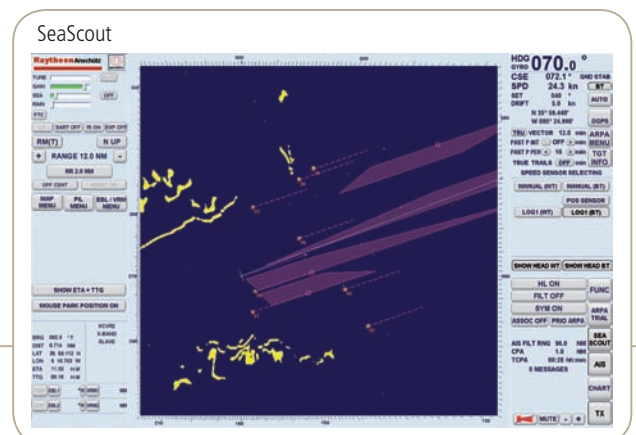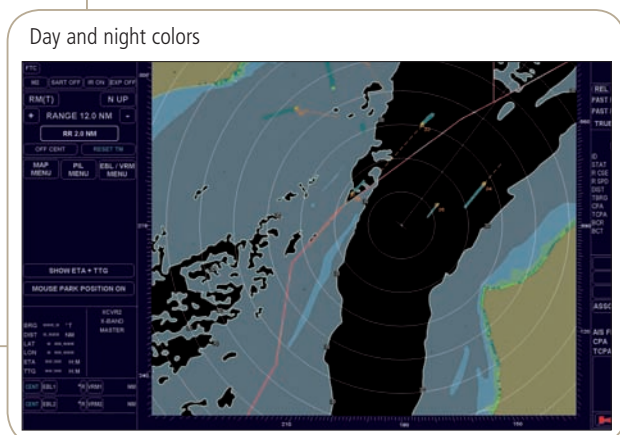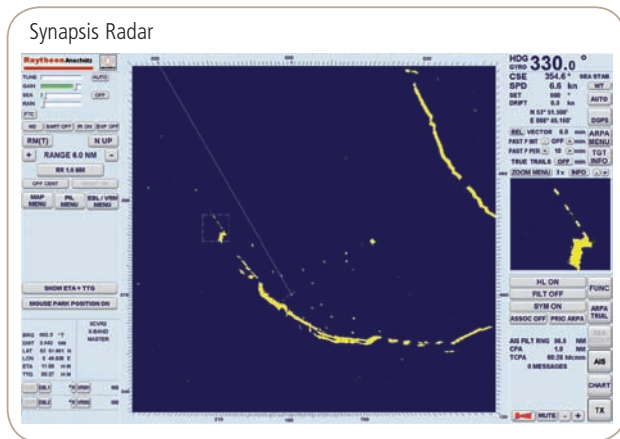
SeaScout~®

SeaScout

The radar operator panel provides turning knobs for quick and sensible operation of EBL (electronic bearing line) and VRM (variable range marker) or alternatively for gain and sea.

To combat clutter caused by rain, the Synapsis Radar offers, apart from the common FTC function an advanced anti-clutter capability, which measures the actual rain attenuation and applies continuous filtering.

Antenna sensitivity controls incl. manual or automatic anti-clutter controls

Echo expansions: enlarges tiny, nearby targets

Own ship data provided by several sensors

Target trails: also available in relative mode, help to clarify traffic situations

Cursor information in radar video range

ARPA: Automatic tracking / plotting of up to 70 targets, offers full control even in dense traffic. ARPA functionality remains available in different display modes e.g. when switching from north-up to head-up.

Central Target Management: The target management associates targets from individual sensors to create new system-level targets for better situational assessment.

Target association of ARPA and AIS targets, to avoid the presentation of two full targets symbols for the same physical target. The function can be enabled or disabled. If the AIS and radar information become sufficiently different, the association is cancelled and two targets are displayed, no alarm is raised.

Chart radar conditions

Synapsis ECDIS

Raytheon Anschütz offers advanced ECDIS (Electronic Chart Display and Information System) functions for safe and simple voyage planning and route monitoring.

Synapsis ECDIS provides a clear presentation of all information needed for safe route monitoring and anti-grounding control. Its intuitive operation is supported by offering easy-to-operate menustructures (known from Windows applications) and comfortable server functionalities.

The ECDIS features intelligent functions for safe and simplified operations. Route planning becomes simple and efficient with the new automatic route planning function and with the optional integrated weather overlay. Situational awareness during route monitoring is supported by an integrated conning panel, look ahead zones, optional radar video overlay, or autopilot remote control with curved heading line display.

Furthermore, various data such as NAVTEX and AIS, which have formerly been located at separate panels on the bridge, can be integrated and displayed or operated on the ECDIS screen. Together with Anschütz NP 5000 autopilots, the ECDIS can also form a track control system category C.

In addition to IHO/IMO compliant vector electronic navigation charts (ENC), Synapsis ECDIS also displays raster charts (ARCS). Of course, 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.
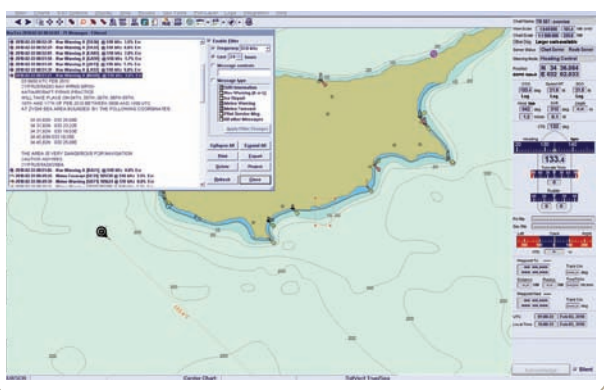
Chart formats / availability
- C-Map ENC (paper chart equivalence)
- C-Map Professional +
- S 57/S 63 1.1 Encrypted ENC
- DNC
- ARCS

ECDIS standard display
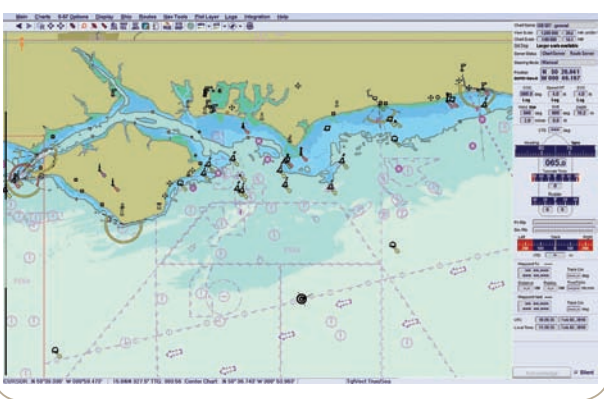

Navtex

ECDIS dusk colors

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. The data can be imported into the ECDIS by download or email either directly or via a USB-Stick.

ECDIS Training

All deliveries include access to the maker specific online ECDIS-training. A partner network of land-based training facilities is also available. More information under: www.raytheon-anschuetz.com/ecdistraining/
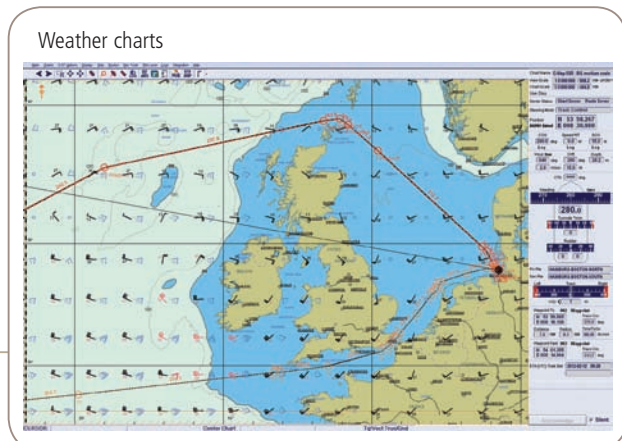
Synapsis Conning

The Synapsis Conning is the centralized data display for the ship's command. It makes available all bridge navigation and machine status data easily at a glance and hence contributes to efficient and safe navigation in accordance with operating philosophy. The combination of different instruments and indications at a central display increases situational awareness even in critical situations of maneuvring and dockingand provides the operator with efficient help in right decision making.

As a standard the Conning features different display modes for different manoeuvring situations and for different types of equipment, such as a navigation data display page, a docking display page, a heading and rudder movement recording page, an instruments page, or a track control page. The Conning also provides the central HMI for INS functions such as sensor management, alert monitoring and system health monitoring.

Various functions can be activated and configured by the operator as needed. Conning also provides full flexibility to create individual display pages.

Weather charts
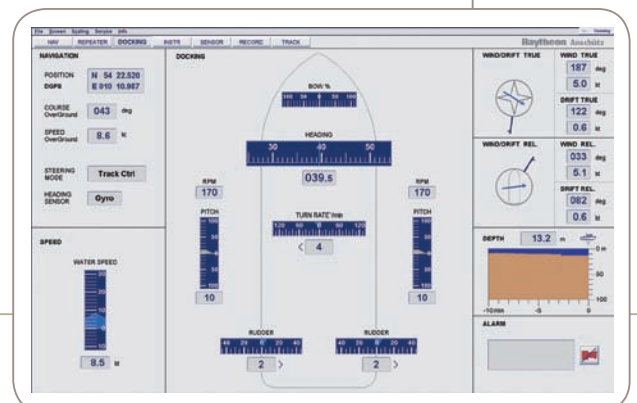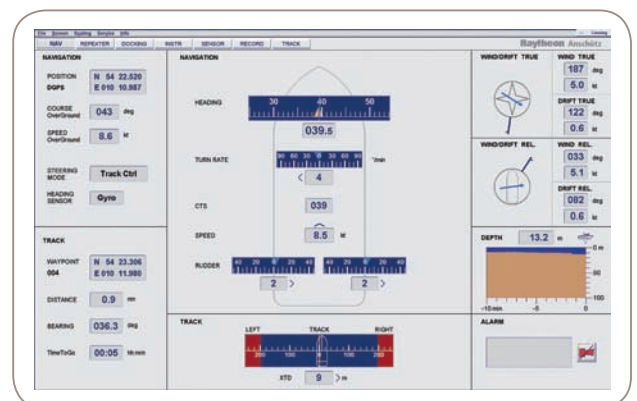
Technical Data

Basic equipment

Monitor
High resolution glassfront TFT displays,
– Resolution 19": 1280x1024 pixel
– Resolution 26": 1920x1200 pixel

PC workstation
– Powerful Core i7 microprocessor
– Windows XP SP3 embedded
– Fanless operation and solid-state SSD
– 1x DVI-I and 2x displayport video outputs
– 24V power supply

Options
– High-quality trackball
– Radar overlay on ECDIS
– Scalable sensor inputs via Nautoplex
  Serial/LAN converter units

System safety
– Fully redundant network infrastructure
– Uninterrupted power supply (UPS)

Available as
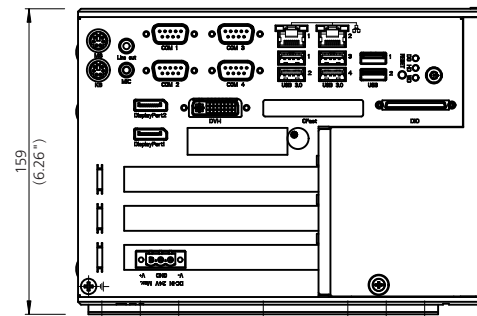### desktop, table top or blackbox version
– For stand alone installation
– Installation at top of a console
– Integration into a customer's console

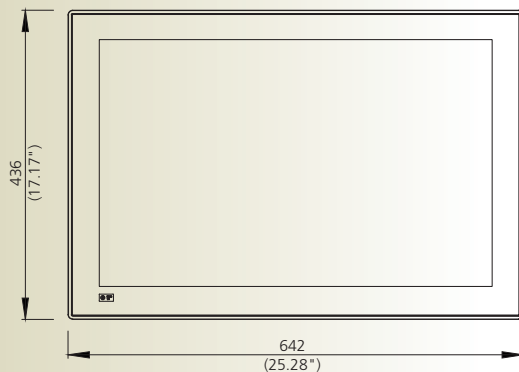### Registered trademarks
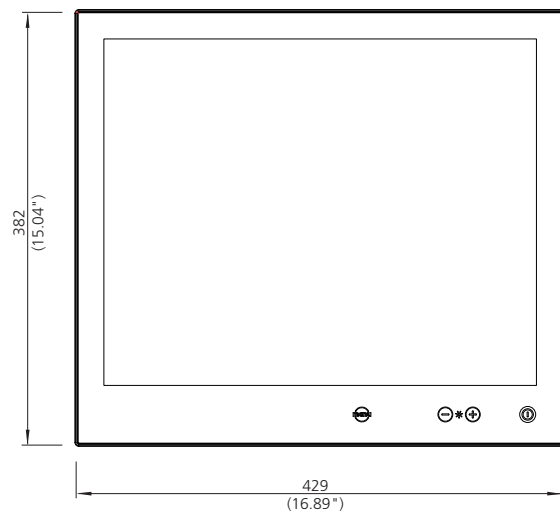Intel®, INTEL Corp.
Windows XP™SP3,
Microsoft Corporation

Small Marine Computer
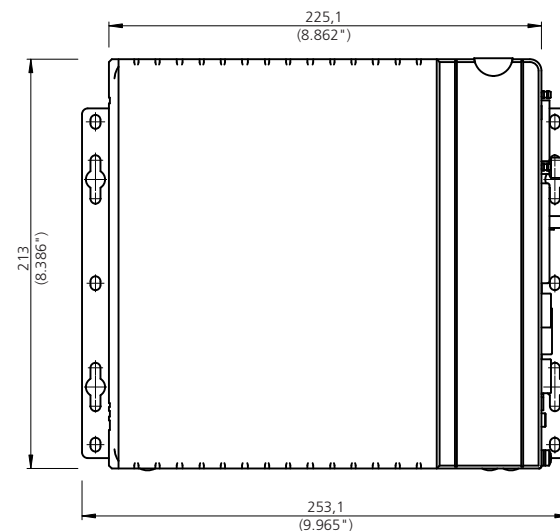
TFT display 26"

TFT display 19"