

# Synapsis Workstation

(Chart-) Radar, ECDIS and Conning



# Synapsis Workstations

## BENEFITS AT A GLANCE

- Safety and efficiency through “any function at any place”
- Integrated redundancies  
(as a multifunctional workstation)
- Intelligent central alert management for safety and reduced stress
- Fewer and standardized components for a less error-prone installation, thus better reliability
- Streamlined sensor collection increases flexibility and reduces cabling efforts
- Radar video on LAN  
(integration of Anschutz NautoScan NX radar sensor)
- Standardized hardware simplifies installation, improves logistics and facilitates services
- Software simplifies configuration and service

Radar, ECDIS and conning applications by Raytheon Anschutz offer advanced functionality beyond basic IMO requirements to contribute to safer navigation and more efficient watchkeeping.

Synapsis Workstations are available as a multifunctional workstation with access to all nautical applications or as a stand-alone system for a single application only. All applications on the Synapsis Workstations use a standardized HMI and provide central and local modes for dimming and color. Different color palettes are available for day and night operations. Standardized hardware components and an innovative network simplify installation and offer high flexibility for future adaptations and needed redundancy.



Small Marine Computer (SMC) and NautoPlex

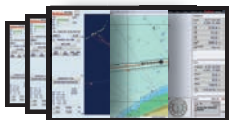
## MULTIFUNCTIONAL WORKSTATIONS

Synapsis Workstations can be easily configured according to customer's individual requirements –from a radar or ECDIS workplace up to a fully integrated multifunctional workstation. The workstations are based on the innovative and advanced “next generation” system architecture.

With standardized hardware components and an innovative network the “next generation” NX architecture significantly improves flexibility, reliability and simplifies installation and maintenance.



Software  
(Radar, ECDIS and/or Conning)



Radar Operator Panel



NautoScan NX  
Radar Transceiver



Console and Display





## INTELLIGENT SYSTEM ARCHITECTURE WITH BUILT-IN SAFETY

The intelligent system architecture reduces complexity of the system.

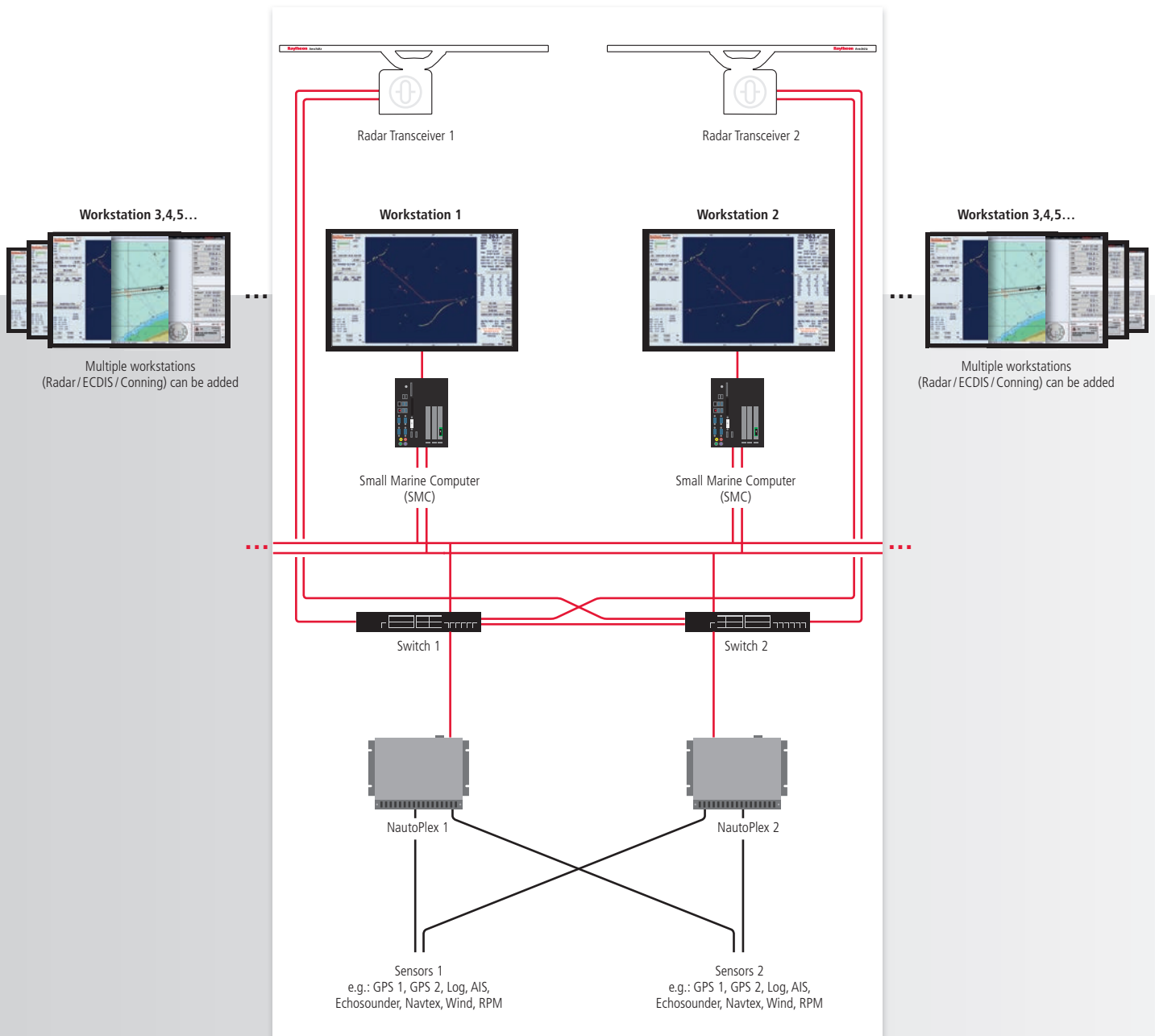
The new NX architecture reduces complexity and offers high scalability, redundancy, and flexibility as well as a better resistance to failures.

The Small Marine Computer (SMC) is the standard hardware for all workstations. The NautoPlex collects data from all serial attached sensors and distributes the data via LAN to the workstations. The radar video is also distributed via LAN to the workstations. Having all data enabled to LAN, additional workstations can be easily added to the system. Each workstation provides data processing and distribution.

### Benefits:

- No need for analog radar video distribution
- No reduced performance due to damping in the video distribution
- No need for extensive cabling of sensors to all individual workstations
- No need for NMEA boosters for serial attached sensors
- No reduced functionality in case of single point failures

Each function at each workstation with full redundancy leads to secure ship operation.



# SYNOPSIS (CHART-) RADAR

All along Raytheon Anschütz radars have been known to be among the most sensitive navigation radars. Thanks to advanced radar technologies and intelligent functions, a strong detection performance ensures highest standard of safety even under rough weather conditions.

Synopsis NSX Radars offer the benefits provided with the Synopsis Workstation generation. In addition the radar includes advanced functions which contribute to optimized target presentation, a clear situational picture and right decision making with regards to collision avoidance and safe navigation.

A clearly structured display of all control functions and status indications as well as a dedicated radar operator panel further ease operation.

### Central target management

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

### 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.



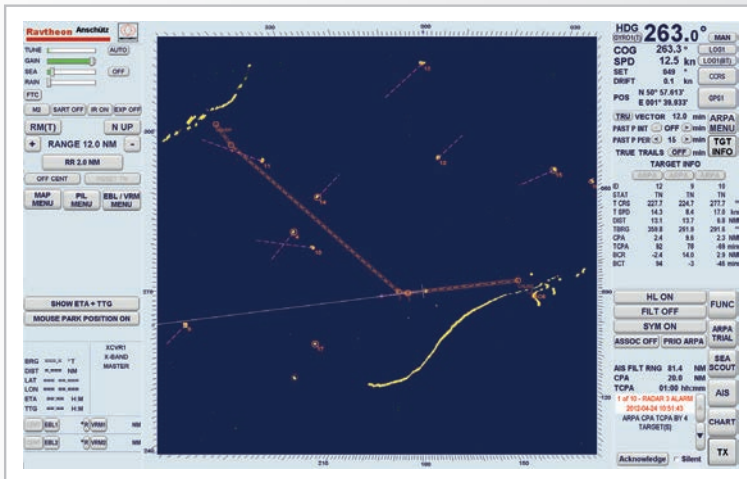
For details about NautoScan NX radar transceivers, please refer to the NautoScan NX brochure.



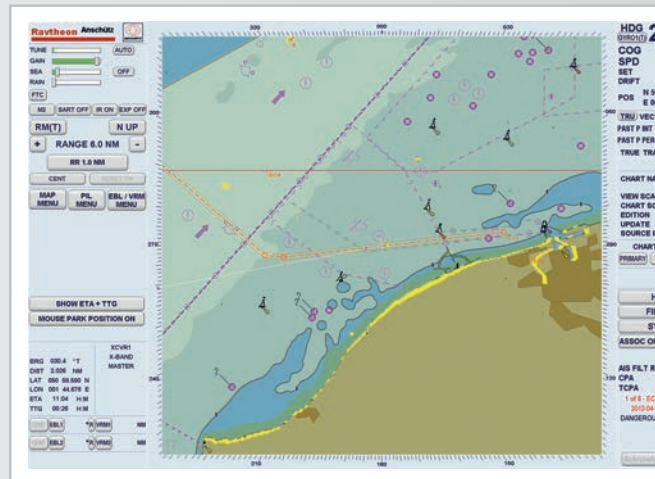
## FEATURES AT A GLANCE

- High-fidelity radar video via LAN (Anschütz NautoScan NX radar transceivers)
- Square radar display to maximize the situational picture
- Manual and automatic target acquisition and tracking
- Advanced functions for anti-clutter and target presentation
- Various functions beyond IMO requirements intuitively support situation assessment (e.g. combining Trial Maneuver and SeaScout collision avoidance tool)
- Integration of AIS targets
- Chart radar function (chart underlay to simplify interpretation of the radar video)
- Integrated handling of sensor data, automatic selection of best data (CCRS)
- Compliant with latest IMO regulations, incl. test standard IEC 62388 ED2
- Easy installation, low installation cost (NX architecture)

Synopsis Radar



Synopsis Chart Radar







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

Echo expansions: enlarges tiny, nearby targets

Own ship data provided by several sensors

Cursor information in radar video range

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

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.

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

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.

### SeaScout

### Radar operator panel




# SYNOPSIS ECDIS

Raytheon Anschutz offers an advanced ECDIS (Electronic Chart Display and Information System) with intelligent and powerful functions for route planning and route monitoring.

The base for Synopsis ECDIS is a clear presentation of voyage related information, the vessel's position relative to shore and structures, traffic separation zones, restricted areas, or other ships. Beyond this, advanced functions are available which account for safety at sea and effectively support and disburden the master in long ranged business.

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/eccistraining/](http://www.raytheon-anschuetz.com/eccistraining/)

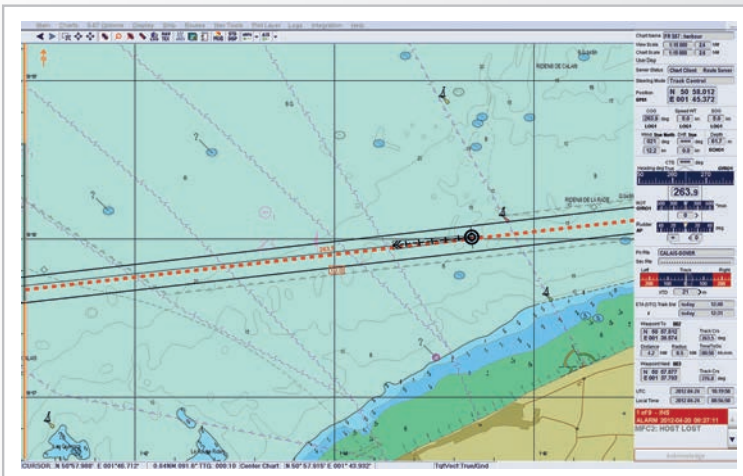
### Chart formats / availability

- C-Map ENC (paper chart equivalence)
- C-Map Professional +
- S 57/S 63 1.1 Encrypted ENC
- DNC
- ARCS

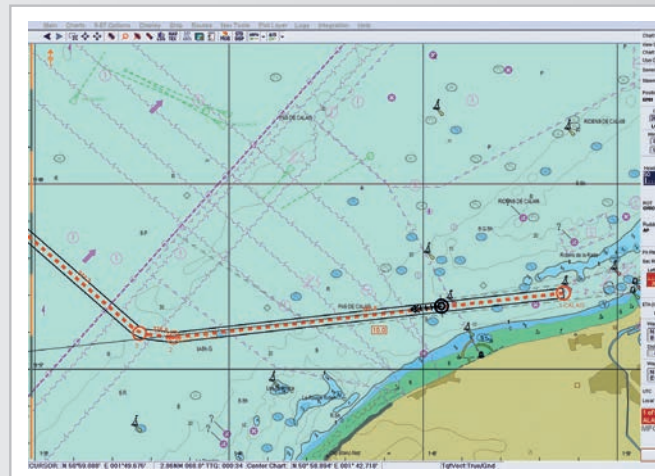
## FEATURES AT A GLANCE

- Manual and automatic route planning function
- ETA calculator, tidal prediction mode and optional weather chart overlay
- Look ahead zones and advanced functions for route monitoring / anti-grounding
- Display of NAVTEX messages / areas of danger, AIS and ARPA targets
- AIS server function, chart / route server function
- Support of Temporary and Preliminary (T&Ps) Notices to Mariners (NMs)
- Track control Cat. C with Anschutz autopilots
- Options: Radar video overlay, tender tracking, weather chart overlay
- Integrated handling of sensor data, automatic selection of best data (CCRS)
- Compliant with latest standards of IMO, IHO and IEC including IEC 61174 Ed.4.0 and IHO Presentation Library Annex A Ed. 4.0 to S-52 Ed. 6.1.
- Online operator training acc. to STCW
- Easy installation, low installation cost (NX architecture)

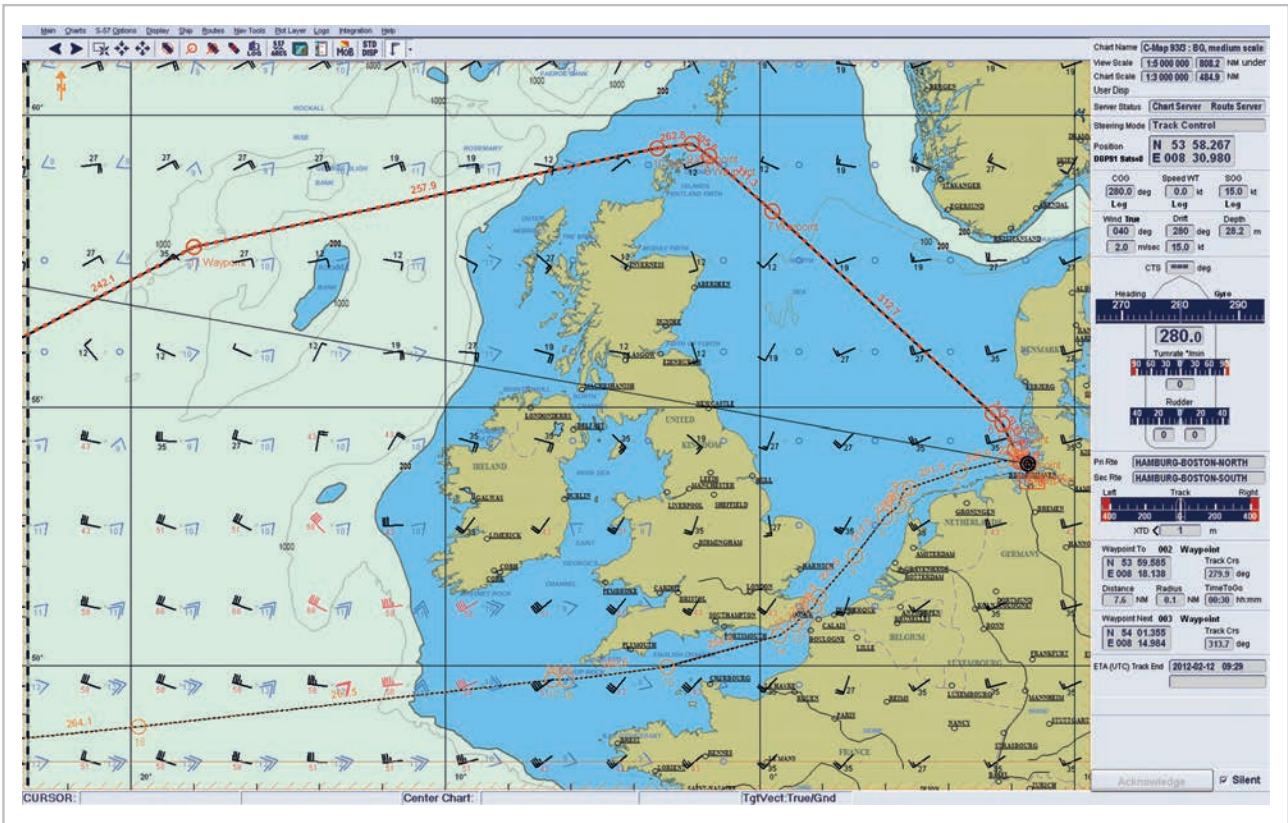
Synopsis ECDIS



ECDIS in track control mode





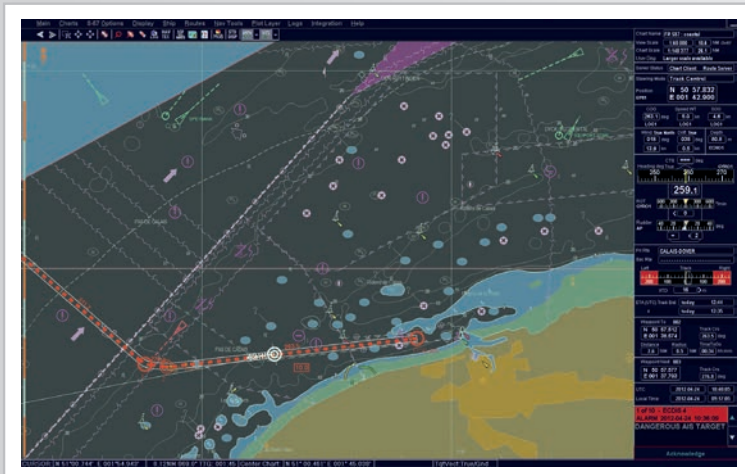


### Weather chart overlay (option)

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.

A comprehensive set of weather parameters can be chosen and presented as values or symbols on a separate layer as needed. If individual weather forecast values exceed the preset limits, the values are shown graphically as weather warnings. Synopsis ECDIS imports the weather data via a standardized GRIBfile from a weather data provider of owner's choice.

### ECDIS night color



# SYNOPSIS CONNING NX

Synopsis Conning NX is the centralized data display for the ship's command. It makes available all bridge navigation and machine status data easily at a glance. The combination of different instruments and indications at a central display increases situational awareness even in critical situations of maneuvering and docking and provides the operator with efficient help in right decision making; thus Conning NX is a strong contributor to safety at sea.

As a standard the Conning NX 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. Conning NX also provides the central HMI for INS functions such as sensor management, intelligent central alert monitoring and system health monitoring.

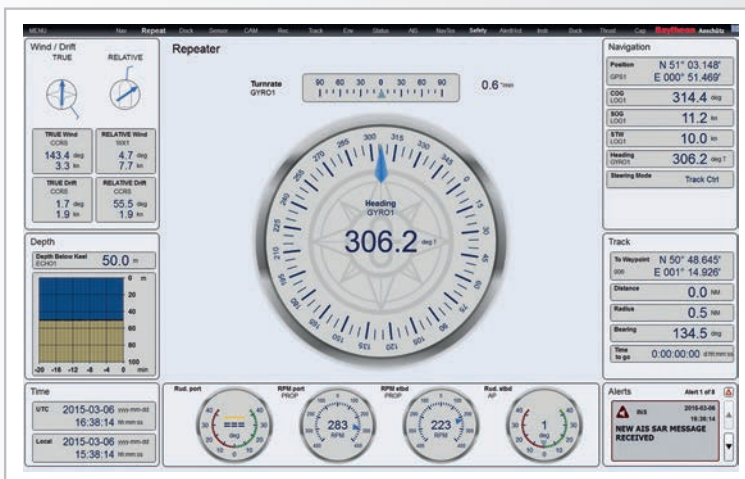
Conning NX is a versatile and extremely capable software. It allows creating individual display pages and even the implementation of additional functionality, including the ability to control and actuate external hardware interfaces.



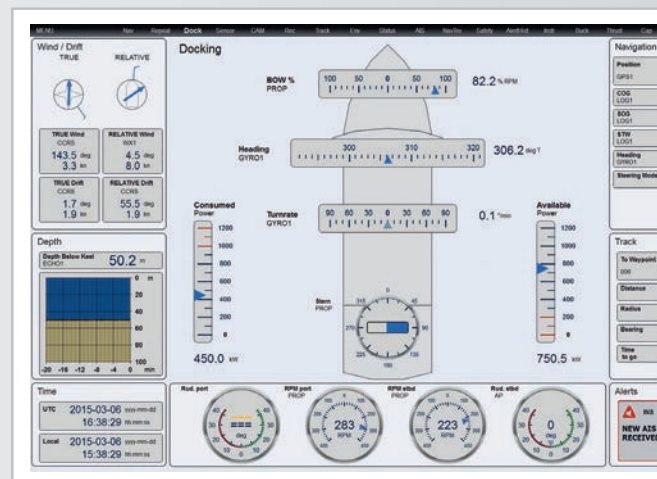
## FEATURES AT A GLANCE

- Additional situation awareness, easy to add to a system
- Not only a display: Conning allows operation of various functions (depending on the individual configuration, e.g. sensor selection, centralized alert presentation)
- Compliant to latest IMO standard for bridge alert management (MSC.302(87))
- Graphics are individually adapted to the specific type of equipment (like "widgets")
- Different pre-configured pages for different maneuvering situations (e.g. navigation, docking, track)
- Flexible application design allows creation of individual graphics and pages
- Central HMI for functions provided within an integrated navigation system (INS)
- Easy installation, low installation cost (NX architecture)

Synopsis Conning NX



Docking page





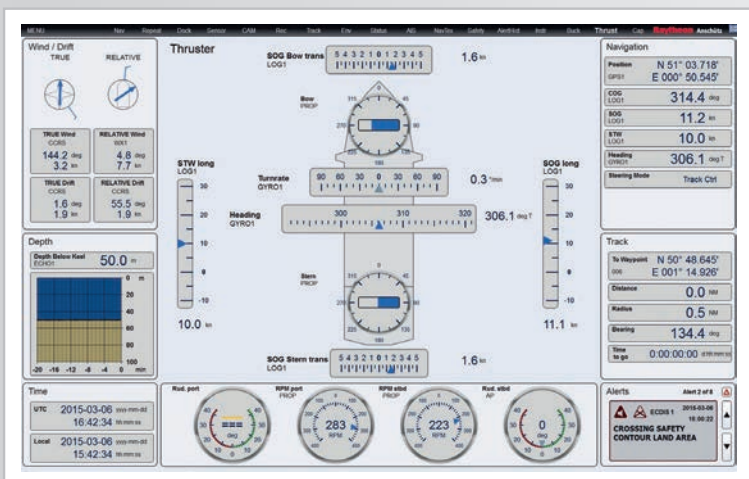


### Conning application on 12" Synapsis Touch Panel

Together with the Synapsis Touch Panels, Conning NX can provide the HMI for a centralized alert HMI (CAM-HMI) of the INS, on bridge level or as a bridge alert management system for DNV Class Notation OSV. Furthermore, thanks to its modular and user-orientated structure, Conning NX is highly flexible to integrate various analog and digital displays within customized display pages. Customer-specific, switchable elements can be created for dedicated functional pages and to actuate the respective hardware interfaces.



### Thruster page

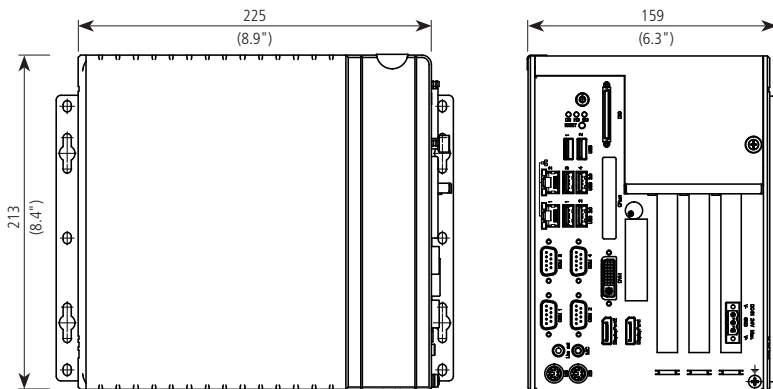


# TECHNICAL DATA

## Small Marine Computer

Our Small Marine Computer (SMC) is the standard for all Synopsis Workstations, making logistics fairly simple and thus shortening service time and cost. The SMC features a solid-state disk and passive cooling to increase reliability and lifetime. With its ultra-compact design and powerful processing capabilities, the SMC is ready for universal use on various ship types.

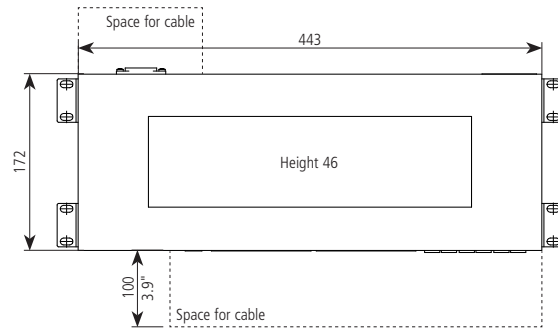
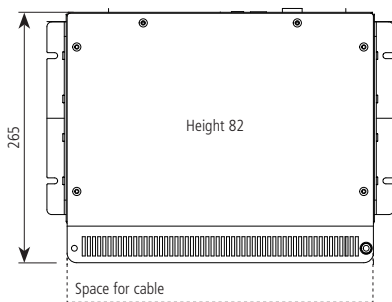
- Powerful Quadcore i7 microprocessor
- Fanless operation and solid-state SSD
- 1x DVI-I and 2x displayport video outputs
- 24V power supply



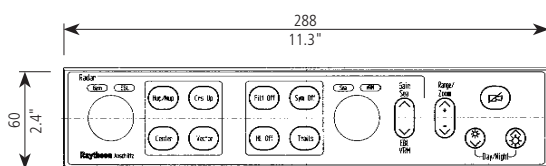
## NautoPlex

With the new scalable NautoPlex serial to LAN converters all serial sensor data as well as status information is collected and distributed via LAN to every workstation. The result: reduced cabling effort and enhanced flexibility.

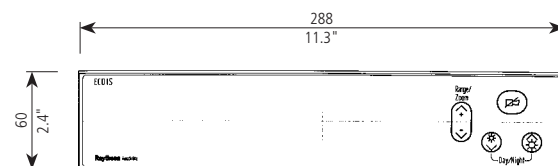
## Ethernet Switch



## Radar Operator Panel



## ECDIS Operator Panel



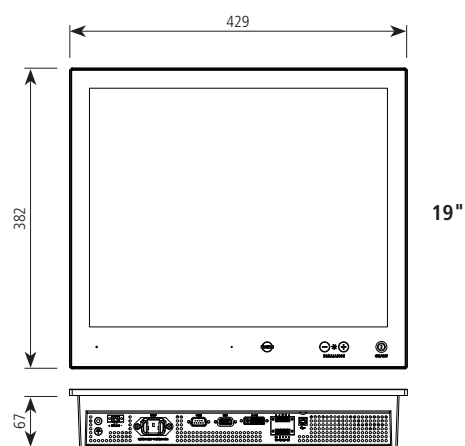
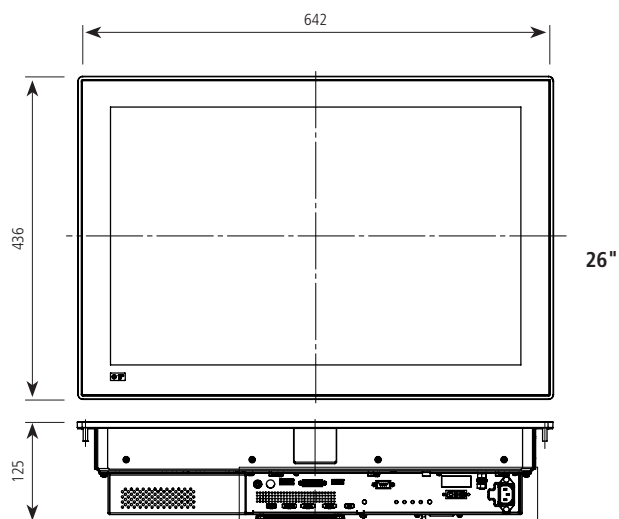


## TECHNICAL DATA

### Glass-front displays

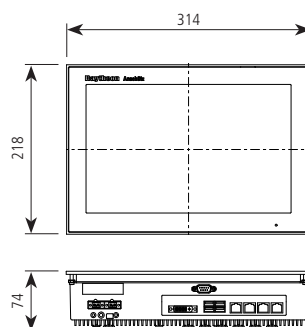
The workstations feature 19"/26" wide-screen, glass-front TFT monitors to increase space for the presentation of radar video, electronic sea charts, and sensor data. Operators benefit from a clear arrangement of all control functions and status indications.

- Resolution 26": 1920x1200 pixel
- Resolution 19": 1280x1024 pixel



### 12" Synopsis Touch Panel

The new Synopsis Touch Panel (STP) is a smart multifunctional display. The STP is available for mounting into the consoles as a centralized display for alert management (INS, bridge level or as NAUT-OSV CAM-HMI) or other specific function (via Conning NX software modules). The STP is a 12" powerful panel PC with touch display, solid state disk and low-noise passive cooling.



#### Registered trademarks

Intel®, INTEL Corp.

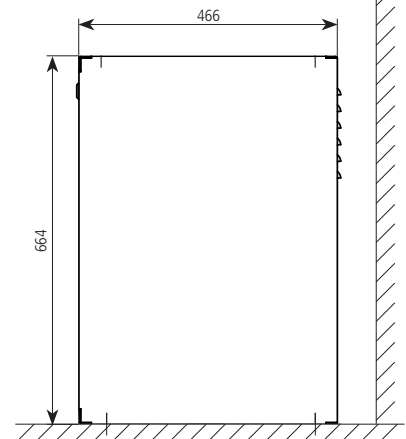
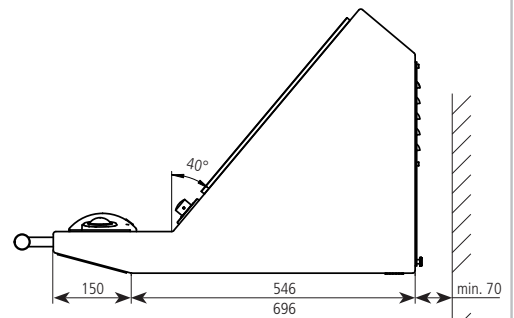
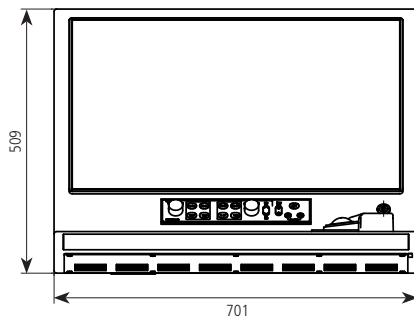
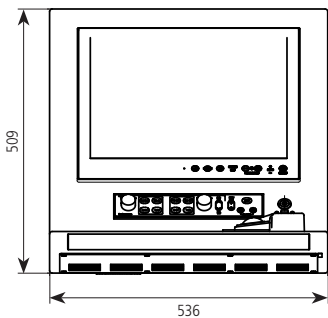
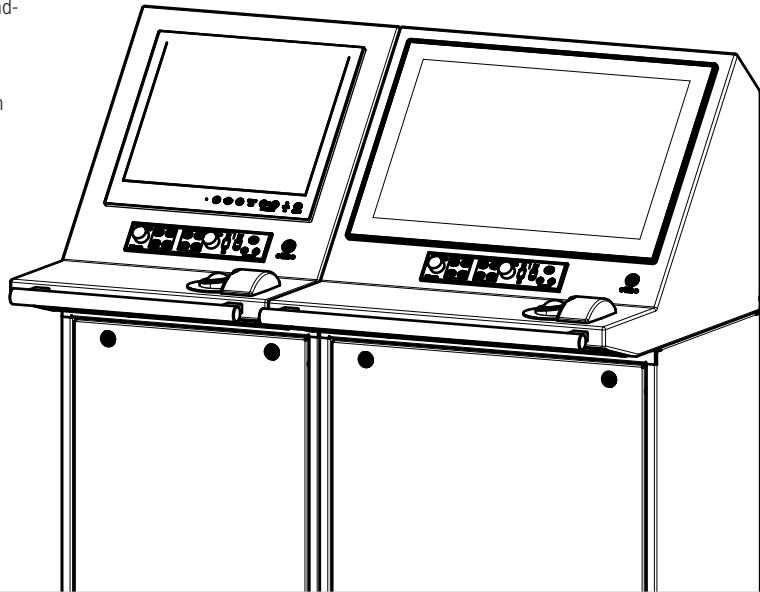
Microsoft Corporation



## TECHNICAL DATA

### Consoles

All workstations are available in a deckstand version for stand-alone installations, in a table top version for installation at the top of a console or in a black box version for integration into consoles. The range is completed with a trackball and an operator panel.



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