FURUNO

VOYAGER
FURUNO BRIDGE SYSTEM

FURUNO VOYAGER, next-generation bridge system, has been designed using our decades of expertise in sensor devices, network integration and software development. FURUNO VOYAGER bridge system offers multifunction workstations with seamless display of Radar/Chart Radar, ECDIS, Conning and Alert Management System data. FURUNO VOYAGER bridge systems have been developed with a completely new and intuitive user interface and in strict accordance with the most up-to-date safety and navigation standards in mind.

FURUNO VOYAGER,
the next-generation bridge system

Total network sensor integration delivers enhanced situational awareness to the mariner. An uncomplicated display presentation simplifies and streamlines navigational tasks. Common responsibilities such as route planning, navigation status monitoring, log-keeping, alarm awareness and day-to-day chart management are made easy through common workstation layout and redundancy of display and control. Watchstanders will enjoy reduced workload and significant freedom to move about the bridge, with all necessary information available in a variety of displays and locations.
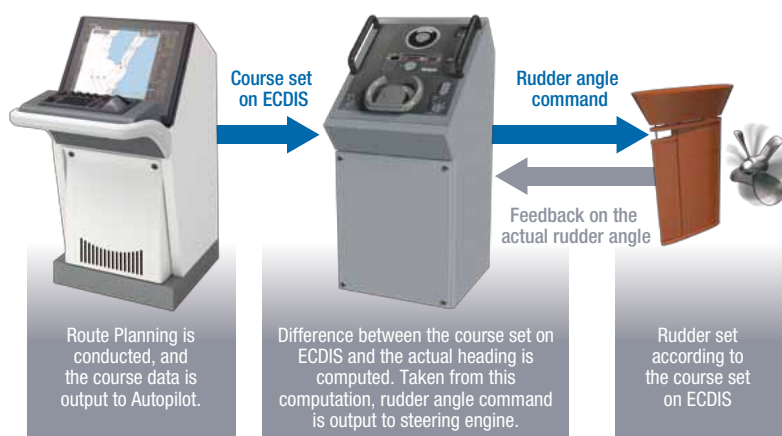

VOYAGER
FURUNO BRIDGE SYSTEM

Track Control System permits automatic steering along the set route

FURUNO VOYAGER features Track Control System through integration of ECDIS and autopilot. This enables the vessel to keep on the plotted route automatically with minimum intervention from the navigator. This has been achieved through:

- Flexible steering control
- route planning on ECDIS
- enhanced position reliability through multi-tiered data validation process

The operator is alerted to navigational warnings and potential dangers before the vessel is at risk.

Course set on ECDIS → **Rudder angle command** →

Feedback on the actual rudder angle ←

Route Planning is conducted, and the course data is output to Autopilot.

Difference between the course set on ECDIS and the actual heading is computed. Taken from this computation, rudder angle command is output to steering engine.

Rudder set according to the course set on ECDIS

FURUNO's new user interface delivers straightforward, task-based operation

Stress-free operation with the well-designed control units

A B   A B   B

ECDIS Control Unit
RCU-024

Radar Control Unit
RCU-025

Trackball Control Unit
RCU-026

A Common key assignment is arranged for the common tasks, such as EBL, VRM controls, on the control units of ECDIS and Radar/Chart Radar

B Operation scheme close to a PC with the use of the trackball.

**Trackball**: to move the cursor and select an object

Left-click: to perform/confirm the action related to the selected object

Right-click: to display contextual menu while cursor is on the display area, and to cancel action done on the selected object

Scrollwheel: to select menu items

Contextual menu

Contextual menu contains all the available actions related to the position of the cursor, hence providing quick access to tasks required.

ECDIS   RADAR
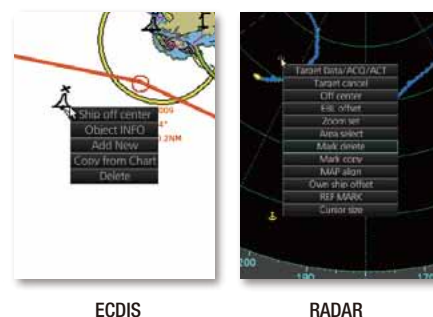
Task-based user interface realized by combination of Status bar and InstantAccess bar providing quick access to the needed tasks/functions

FURUNO VOYAGER user interface includes carefully organized operational tools designed to make navigational tasks simple and easy. The "Status Bar" at the top of the screen clearly indicates operating mode and status and offers direct single-click control of the navigator's principle tasks. The "Instant Access" bar at the left of the screen provides direct control of the features and attributes of the on-screen presentation. These on-screen tools deliver straightforward, task-based operation with all multi-function display information in view at all times. The operator can quickly perform navigational tasks without having to enter intricate menus, thus losing situational awareness.

Status bar

InstantAccess bar

Multifunction display (MFD) capability

FURUNO Voyager offers workstations that combine
flexibility and redundancy. Users may easily select
ECDIS, Chart Radar, Conning display or Alert
Management System at any multi-function display.
Navigators will enjoy reduced workload and
significant freedom to move about the bridge,
with all necessary information available in a variety
of displays and locations.

Operator-preset conning display orientation
can be summoned upon clicking on
the dedicated buttons on the status bar.

Conning display

In the Conning display mode, sensor information and real-time navigation data
are presented to navigators in a thoughtfully designed display presentation.

Information to be shown in the conning display:

- **Heading** • **Pitch and Roll** • **Rudder angles** • **Rate of Turn**
- **Position fix** • **Speed (bow speed, longitudinal speed and stern speed)**
- **Propeller pitch** • **Wind speed and direction (both true and relative)**
- **Thrusters pitch** • **Alert list** • **BNWAS indication** • **Date and time, etc.**
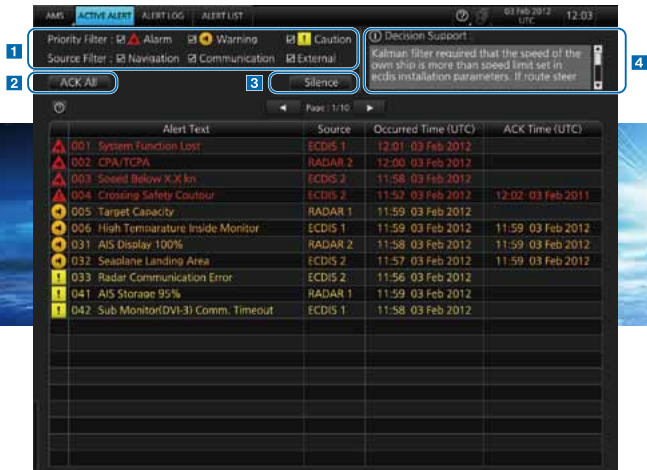
Alert Management System

Alert Management System presents and prioritizes alert status and information.
The well designed display layout gives operators the ability to quickly identify alert situations,
and the actions required to rectify the cause of the alert.

The Alert management System complies with MSC.302(87) Performance Standards for Bridge Alert Management.
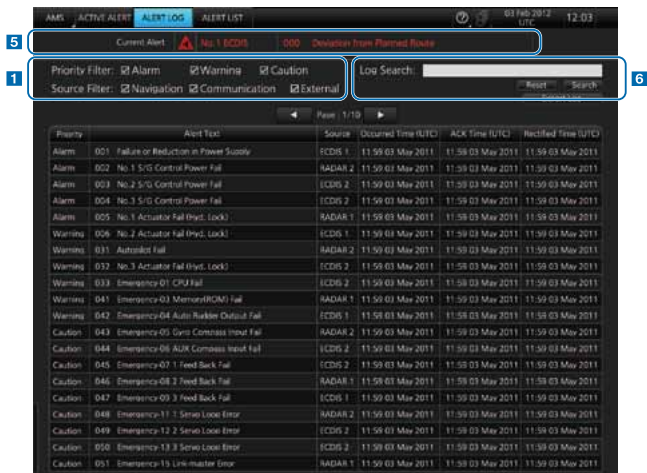
ACTIVE ALERT

List of alerts currently active can be viewed.

By clicking on the 🔘 in the ACTIVE ALERT page, the list of icons used in the Alert Management System and their descriptions can be shown as a pop-up window.

ALERT LOG

Alert history can be viewed in chronological order. The source of alerts, and the date and time each alert was raised, acknowledged and rectified are shown.

ALERT LIST
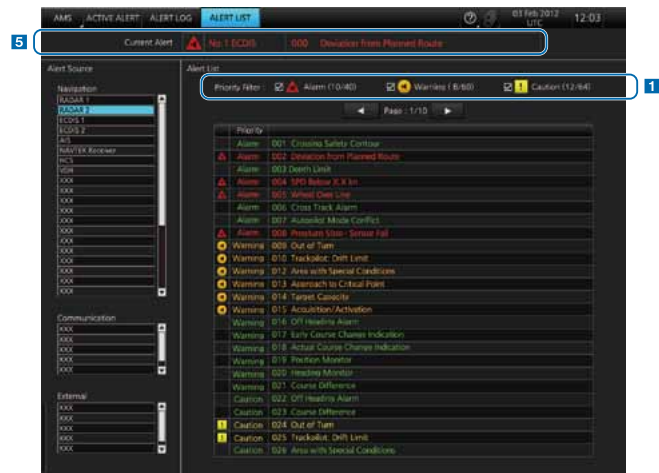
List of alerts available for each alert source can be viewed.

1 Listed alerts can be filtered by priority levels and alert sources.

2 All the alerts listed on the displays can be acknowledged by clicking on "ACK All".

3 All the audible alerts can be silenced by clicking on "Silence".

4 The nature of the alert situation selected as well as remedy to rectify the alert situation is presented in the "Decision Support" area.

5 The latest active alert is displayed in the ALERT LIST and ALERT LOG pages.

6 Keyword search function is available in the ALERT LOG page, and the alert log can be exported to external use.

FURUNO VOYAGER onboard navigation network system

FURUNO VOYAGER integrates the following two separate networks that link all the onboard navigation equipment, including multifunction displays and various sensors: Network for Integration and Interswitch and Network for Sensor Integration.
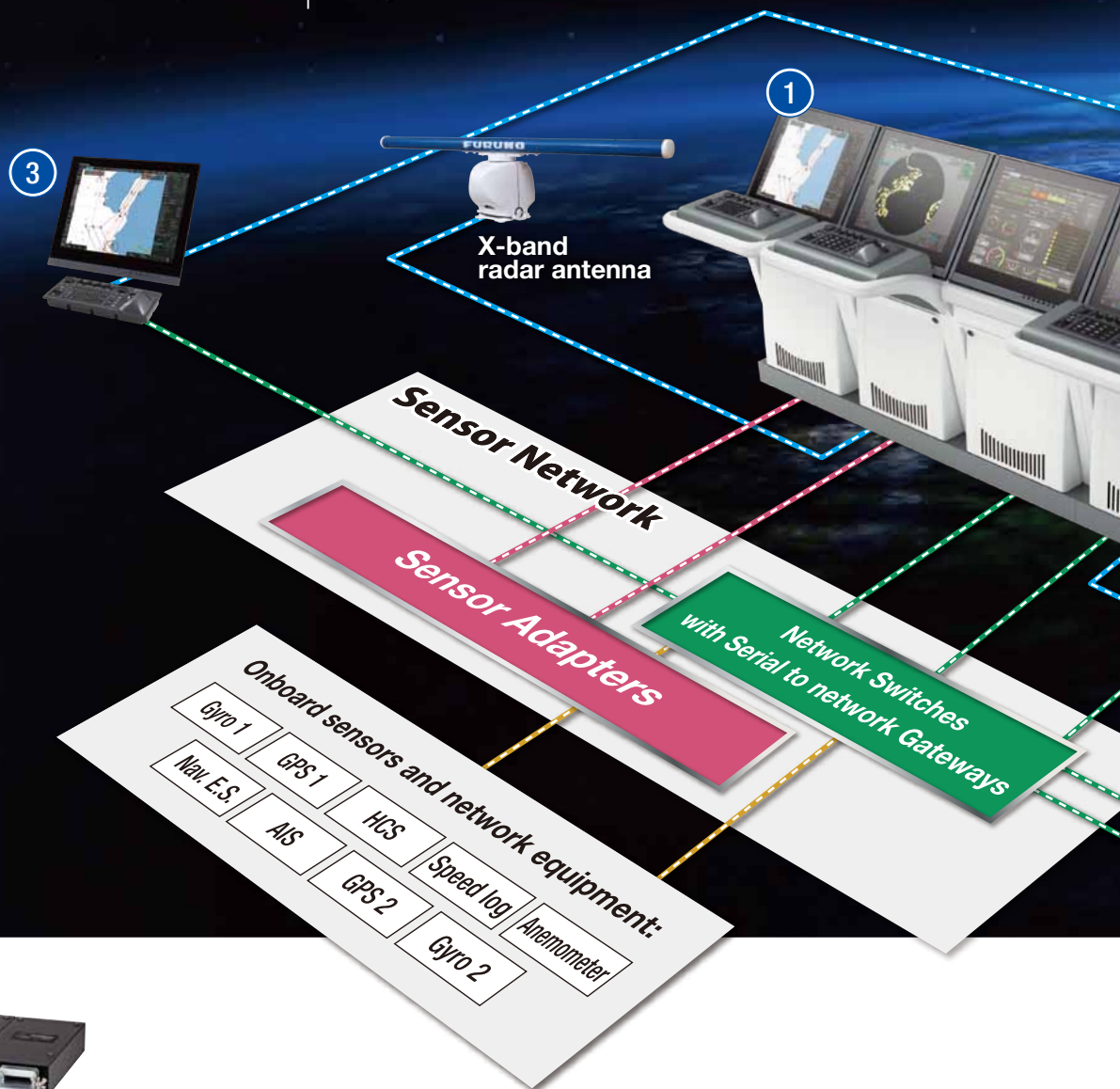
The navigation system consists of duplicated subsystems so that any loss of navigational functions can be avoided in an event of single point of failure. Since MFD is able to function as radar, ECDIS, conning information display and alert management system, navigation tasks can be performed from any of the interfaced multifunction displays, hence optimizing the system availability.

Network for Integration and Interswitch (Gigabit Ethernet) is used to communicate the following data:

- **Radar interswitching**
- **TT and AIS target data**
- **Harmonization of databases (charts, routes, etc.)**

Network for Sensor Integration (combination of 100 Base-TX Ethernet & IEC 61162-1/-2) is used to communicate the following data:

- **Sensor data**
- **Alert information**

X-band
radar antenna

Sensor Network

Sensor Adapters

Network Switches
with Serial to network Gateways

Onboard sensors and network equipment:

Gyro 1 | GPS 1 | HCS | Speed log | Anemometer
Nav. E.S. | AIS | GPS 2 | Gyro 2

Sensor adapter

Sensor adapters act as central medium to gather all the sensor data and collectively feed it to all the workstations within the system. Individual cablings in the sensor-to-workstation interface can be greatly reduced. Since arrangement of the sensor adapters can be customized and extended to cover all the sensors within the system, thanks to its component configuration, flexibility can be assured when planning the network structure of the bridge system.

SafeComNet™
FURUNO Mobile Satellite Services

Communications Satellite

VSAT

FleetBroadband

Service gateway

Ship's LAN

Network for integration and interswitch

VDR

S-band radar antenna

Office

4

2

1. Multifunction displays operating as X-/S-band radar, ECDIS, Conning Information Display and Alert Management System

2. Multifunction display for Route planning workstation

3. Multifunction display for Wing workstation (port side)

4. Multifunction display for Wing workstation (Starboard side)

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