SPECIFICATIONS

Radar/ARPA

FAR-2807 series

Display Unit	23.1" color LCD, UXGA (1600 x 1200 pixels)
ARPA	100 targets (manually 50, automatically 50)
AIS	1000 targets
Data from ECDIS	Planned route, User customizable chart, Pilot data
Other Functions	Performance monitoring, Interswiched up to four sets of X- and S-band radar by menu operation, Echo trail

ECDIS

FEA-2107/2807

Display Unit	FEA-2107: 20.1" color LCD, SXGA (1280 x 1024 pixels)
	FEA-2807: 23.1" color LCD, UXGA (1600 x 1200 pixels)
Usable Charts	IHO/S-57 v.3 vector chart, ARCS raster chart, C-MAP CM93 ed3* * available in the near future
Voyage Calculation	Range/Bearing to destination, TTG, ETA, Fuel consumption
Route Navigation Monitoring	
	Off track, Waypoint, Arrival, Grounding, Depth
Other functions	Nighttime/daytime display, ARPA/AIS target display, Radar overlay, User chart, Position optimization, MOB, Log book, Pilot data, Track control system (TCS)* * Please contact the local dealers in your area for details

Conning Information Display

Display Unit	Choice of 20.1" or 23.1" color LCD, SXGA (1280 x 1024 pixels)
Display of navigational information	
	Planned route, Waypoint data, Ship's Speed, Heading, Rudder angle, Rate of turn, Wind speed/direction, Depth, Propeller rpm/pitch, Thruster status

Track Control System

Tracking function	Automatic Waypoint approach maneuver planned by ECDIS, Automatic turning by dedicated radius
Alarms	Off-track, Off-course

Steering

Manual steering, Heading control system (Automatic track control), Waypoint approach maneuver, Track control system, Radar/ARPA approach maneuver

INTERCONNECTION DIAGRAM

The dimentions vary depending on the system configuration
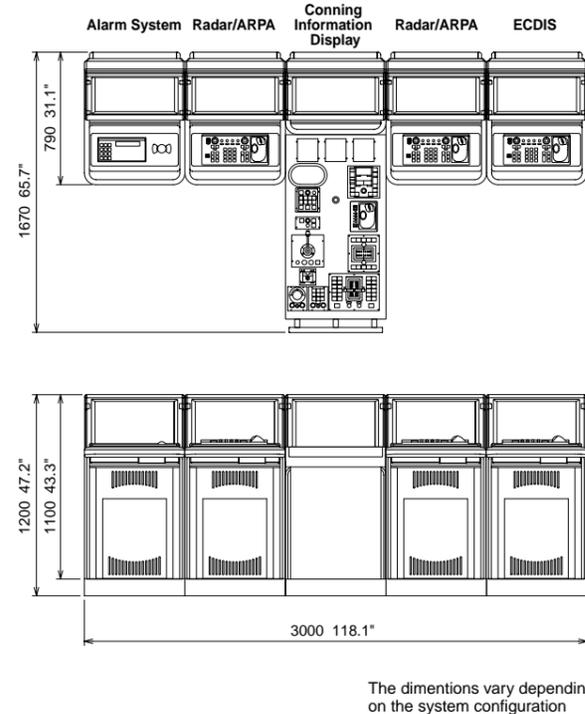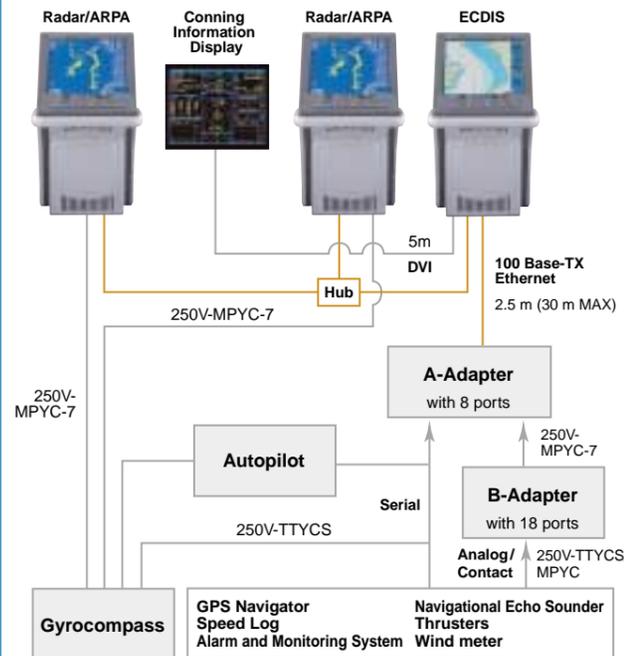
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FURUNO DEEPSEA WORLD

FURUNO

VOYAGER
Integrated Navigation System

The future today with FURUNO's electronics technology.

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Catalogue No. L-160a

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FURUNO's navigation equipment is designed to fully meet the latest standards set by IMO, IEC, ISO and other international industrial organizations. All FURUNO equipment is developed by our unparalleled R & D Department, which is staffed with the premier engineers in the marine electronics industry. Their expertise in the fields of sensor devices and software development allows FURUNO to construct equipment that is reliable and will perform in a variety of environmental conditions.

Working from this technological foundation, FURUNO's integrated navigation system (INS VOYAGER) was created. The system consists of a Radar/ARPA*, an ECDIS** and an autopilot to facilitate the Track Control System. All of these components fully comply with the latest standards set by the IMO and IEC.

VOYAGER's streamlined design matches modern cruise ships, super yachts and other ocean-going commercial vessels. With its sleek design, VOYAGER can fit right into the most up-to-date bridge area where the operation of the vessel is performed. A simple but efficient bridge layout allows for all of the navigation information to be easily accessible.

VOYAGER's unparalleled navigation system employs seamless operational control throughout the entire system, as if it were a single device.

* ARPA: Automatic Radar Plotting Aid
** ECDIS: Electronic Chart Display and Information System

**Efficient bridge layout
with an advanced console design**

VOYAGER
Integrated Navigation System

FEATURES of VOYAGER

Streamlined route planning

The new ECDIS "FEA-2107", which comes with the standard configuration of VOYAGER, fully meets the quality standards set by IMO and IEC. This is compatible with an ENC (S57 Edition 3) chart, an ARCS chart and C-MAP CM93 ed3*.

The operators can conduct route planning, while taking into account the waypoints and destinations shown on the screen. Its sophisticated screen layout and graphic processing techniques allow the operator to observe the performance of all the functions including the route planning. Moreover, the FEA-2107 can share navigation information with radar/ARPA and vice versa. The planned routes produced in the ECDIS can be transferred onto

the radar screen, and the electronic chart can be overlaid with the data from radar/ARPA.

*available in the near future

Comfortable and intuitive operation

The ergonomic design of the control panel of VOYAGER provides comfortable operation. The whole operation of the system can be done solely with the use of the trackball and the thumbwheel.

Networked information handling

Thanks to its up-to-the-minute data communications technology, VOYAGER offers the possibility of interswitching radar images amongst the radar networked within the system. Also, it enables the radar and ECDIS to share a variety of navigation information obtained from a variety of navigation equipment.

The Ethernet-based network offers enhanced stability and reliability in data management. It also streamlines the wiring of the whole system, thus simplifying installation and maintenance.

Track Control System permits automatic navigation

VOYAGER features the Track Control System through the combination of ECDIS and an autopilot. This Track Control System enables the automatic navigation to the destination in a variety of situations ranging from sailing through narrow straits to ocean-crossing. This has been achieved with the help of flexible steering control together with route-planning in minute detail. Moreover, area data for possible danger as well as important warning for navigation can be registered in the system. Important information can be displayed before the vessel reaches the areas.

A variety of navigation information including vessels' heading, rate of turn, planned route and drift is graphically displayed on the conning screen. Waypoint data and navigational warnings are shown on the screen as well.

Module design facilitates flexible installation

VOYAGER is a combination of individual modules comprising of radar, ECDIS, etc. Therefore, the system

configuration can be customized for almost any bridge environment. VOYAGER can be installed on both existing and newly built vessels.

Its streamlined design makes it ideal for an operation-oriented bridge area.

X-/S-band radar/ARPA

The FAR-28x7 series radar/ARPA, which utilizes a high-definition UXGA LCD, is employed in VOYAGER. Whether its an X-band or S-band radar, the FAR-28x7 series provides a sharp and clear presentation of radar images, ARPA and AIS symbols and markers.

With the latest signal processing technology, a variety of functions including: the echo trail, echo stretch and anti-clutter rain/sea are available. These functions allow the operator to observe the targets' movement in different sea conditions, and assist the operator in obtaining even the smallest of the targets.

ECDIS **(Electronic Chart Display and Information System)**

▶ Fully complies with standards by IMO/IEC
▶ Compatible with ENC (IHO S57 Edition 3), ARCS chart and C-MAP CM93 ed3*
  * available in the near future
▶ User-updateable chart plotting
▶ Radar image overlay
▶ Presents data from ARPA and AIS
▶ Track Control System when connected with autopilot
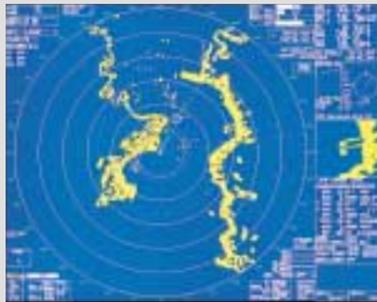
RADAR/ARPA **(Automatic Radar Plotting Aid)**

▶ Fully meets the standards set by IMO/IEC
▶ Plots and tracks* up to 100 ARPA targets
  * Target tracking is conducted both manually and automatically.
▶ Displays up to 1,000 AIS targets
▶ Sets up the specific guard zones
▶ Various alarm functions to alert of hazardous objects, objects entering the guard
  zones as well as CPA and TCPA
▶ Displays the data from ECDIS such as the planned routes and user charts and others
▶ Enhanced detection capability for the targets in the short range, thanks to the most
  up-to-the-minute signal processing technology

Conning Information Display

▶ Works out the precise position of the vessels through the data from a Gyrocompass,
  positioning equipment and Speed and Distance Measuring Equipment.
▶ The heading and rate of turn can be input and displayed
▶ Navigation mode and berthing mode

Route planning / Route monitoring

▶ Track Control System using combination of ECDIS and autopilot
▶ Flexible route planning in minute detail
▶ Optimization of the routes taking into account the running cost
▶ Pilot data display
▶ Antigrounding alarm function

**VOYAGER offers a multitude of functions
that solidly support navigation safety**

Alarm system   *RADAR/ARPA*   Conning Information Display   *RADAR/ARPA*   *ECDIS*