

## Approvals

Kongsberg Maritime is officially recognised as the leading supplier of ship's bridge simulators, and Polaris exceeds the requirements of STCW'95 regulation I/12, Section A-I/12, Table A-II/1, Table AII/2 and Table AII/3 and Section B-I/12. The following have certified or approved Polaris:

- Det Norske Veritas (DNV)
- The Norwegian Maritime Directorate
- Ministry of Transport of Russian Federation
- Maritime and Coastguard Agency (U.K.)
- United States Coast Guard

## Main specifications

Instructor stations	1 - 8
Own ships bridges	1 - 26
Target ships (per exercise)	100
Target waypoints	1000
Buoys (per exercise)	1000
Bridge Instrumentation	Yes
Radar/ARPA	Yes
ECDIS	Yes (various charts available)
Visual system	Yes (single or multi channel)
Tugs	10 per own ship
Mooring lines	10 per own ship
Winches	8 per own ship
Hydraulic Winches	2 per own ship (optional panel)
Fenders	500 (per exercise)
Banks & channels	Calculated based on depth contour
Exercise area	Up to 221 x 221 nm (area dependant)
Earth geometry	Spherical
Radar resolution	Down to 3.13 meter
DGPS	All available satellites
Sound signals	Horn, bell, gong and environmental sounds
Anchors	2 per own ship (optional panel)
NavTex	Yes (optional panel)
Navigation lights	Yes (optional panel)
Echo sounder	Yes (optional panel)
Depth chart	Can exceed 150 000 depth soundings
Models	Six-degrees-of-freedom
Modelling effects	Banks, fenders, interaction, squat etc.
Modelling tools	Available for databases and models (optional)

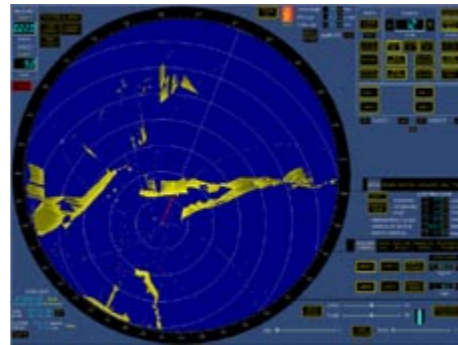
(Specifications are all subject to change without notice).

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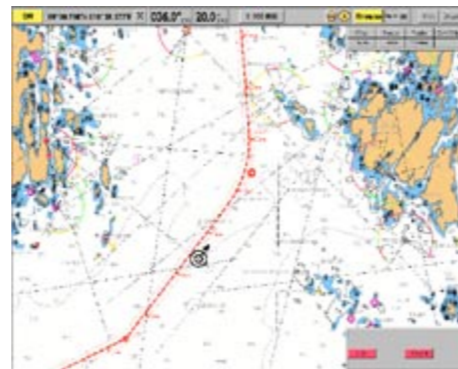
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Instrumentation



Polaris Radar/ARPA



ECDIS



Visual Scene



KONGSBERG



## Polaris Desktop bridge simulator



*“We give you  
freedom of  
choice”*

### Flexibility and scalability

The worlds most flexible bridge simulator just got even more adaptable. Our unique panel concept has been taken one step further. We can now offer a desktop simulator with the same panels and functionality as our larger bridge simulators. The simulator is targeted as a single and limited task system and will heighten your training efficiency. This PC-based desktop system is designed to be a low cost way to increase available training capacity. Should your training requirement change the simulator can at any time be upgraded with additional functions or features.

### Instructor station

Much effort has gone into the design of our instructor and debriefing facilities. This has resulted in the most user-friendly and flexible workstation available. The desktop simulator uses the same instructor station as found in our ship-handling systems.

### Student workstation

The student workstation consists of one or a number of monitors showing bridge instrumentation, conning display, Radar/ARPA, ECDIS and visual scene. The

instrumentation has the same accuracy and fine detail as found in our ship-handling simulators. Operation is done through keyboard and mouse or touch screen. All systems are fully configurable to a customer's specific requirements, and can freely be combined with any standard Polaris equipment either in the same student workstation or in a separate own ship.

### Exercise areas

We have a large library of exercise areas. New areas are continuously added. Exercise areas include all navigational details one expects from a shiphandling simulator.

### Simulation models

Our success as a simulator supplier is in part due to the quality of our hydrodynamic and target ship models. These are the same as used with our full mission simulators.

### Student Evaluation

The SEA system™ allows structured and objective student assessment.

## Available configurations

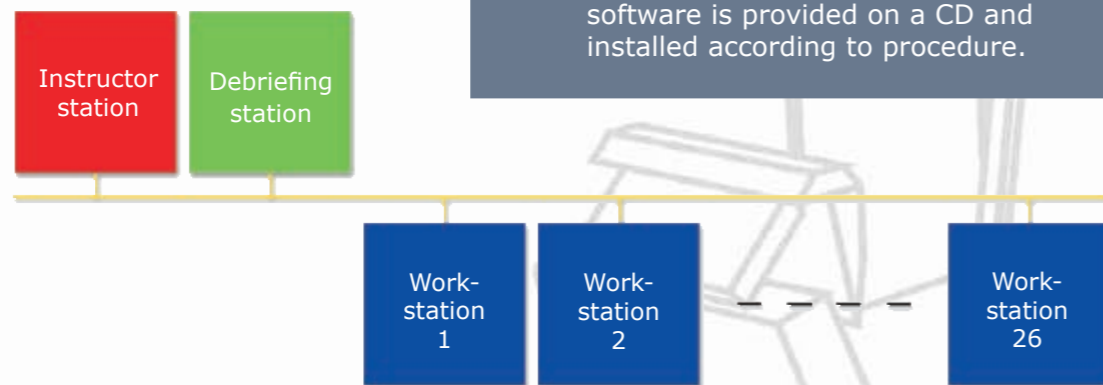
Polaris desktop can freely be configured to a customer's specific requirement, and can freely be combined with any standard Polaris equipment. In the following we have outlined three possible configurations to give you some ideas.

## Simulator classification

Det Norske Veritas (DNV) has established a standard for carrying out simulator approval. The purpose of the standard is to ensure that the simulations provided by the simulator include an appropriate level of physical and behavioural realism in accordance with recognised training and assessment objectives. Polaris desktop is designed to meet this standard.

## Delivery

Normally we deliver Polaris as a turnkey project, however when required portions of the off-the-shelf software and hardware can be provided by the customer.



### Hardware provided by customer

- High-resolution TFT or CRT monitor
- PC's (model to be verified)
- Printer
- HUB and interconnection cabling

### Software provided by customer

- Licenses for Windows®2000 including the latest service pack.

### Hardware provided by Kongsberg

- Graphics card (where required)
- Keylock

### Software provided by Kongsberg

Simulator application software. The software is provided on a CD and installed according to procedure.

## Example 1

### Workstation equipment

Polaris desktop simulator with one monitor and one PC.

### Simulator class

This configuration meets the requirements of DNV Class X (NAV) Special task bridge operation simulator. It is capable of simulating operation and maintenance of particular bridge instruments, and defined navigation and manoeuvring scenarios such as the requirements for Radar/ARPA training or those of a navigation laboratory.

### STCW reference

Table A-II/1.3 Use of Radar/ARPA to maintain safety of navigation.

Table A-II/1.8 Manoeuvre the ship.

### The configuration includes

- 3 DOF ship models (6 DOF optional)
- Effects of weather
- Tidal stream and currents
- Three own ship models

- 10 different target ships
- 100 target ships at the same time.

### Simulated instruments

The workstation may include the following instruments:

- Polaris Radar/ARPA
- Throttle
- Log, distance, time
- Wind direction & force
- Sound signals
- VHF
- Steering system
- DGPS
- Echo sounder



Instruments examples

## Example 2

### Workstation equipment

Polaris desktop simulator with two monitors and one PC.

### Simulator class

This configuration meets the requirements of DNV Class C (NAV) limited task bridge operation simulator. It is capable of simulating a shipboard bridge operation situation for limited navigation and collision avoidance.

### STCW reference

Table A-II/1.3:

Use of Radar/ARPA to maintain safety of navigation.

Table A-II/1.4:

Respond to emergencies.

Table A-II/1.5:

Respond to a distress signal.

Table A-II/1.8: Manoeuvre the ship.

Table A-II/2.6: Maintains safe navigation through the use of radar/ARPA and modern navigation systems to assist command decision making.



### The configuration includes

- 3 DOF ship models (6 DOF optional)
- Effects of weather
- Tidal stream and currents
- Three own ship models
- 10 different target ships
- 100 target ships

### Simulated instruments

The workstation may include the following main instruments:

- Polaris Radar/ARPA
- Throttle
- DGPS
- ECDIS
- Sound signals
- Engine alarm
- Echo sounder
- Wind direction & force
- Log, distance, time
- Steering system
- VHF and VHF DSC

## Example 3

### Workstation equipment

Polaris desktop simulator with three monitors and two PC's.

### Simulator class

This configuration meets the requirements of DNV Class C (NAV) limited task bridge operation simulator. It is capable of simulating a shipboard bridge operation situation for limited (instrumentation or blind) navigation and collision avoidance.

### STCW reference

Table A-II/1.3 Use of radar and ARPA to maintain safety of navigation.

Table A-II/1.4 Respond to emergencies.

Table A-II/1.5 Respond to a distress signal.

Table A-II/1.8 Manoeuvre the ship.

Table A-II/2.6 Maintains safe navigation through the use of radar/ARPA and modern navigation systems to assist command decision making.



### The configuration includes

- 3 DOF ship models (6 DOF optional)
- Effects of weather
- Tidal stream and currents
- Three own ship models
- 10 different target ships
- 100 target ships at the same time.

### Simulated instruments

The workstation may include the following main instruments:

- Polaris Radar/ARPA
- Throttle
- DGPS
- ECDIS
- Sound signals
- Engine alarm
- Echo sounder
- Wind direction & force
- Log, distance, time
- Steering system
- VHF and VHF DSC