SERS™

SHIP ENGINE ROOM SIMULATOR

ClassNK
Certificate of **MET**

SERS™ has been developed with over 15 years of Engine Room Simulator Training experience.

"We have combined our onboard and academic experience with high level of software engineering expertise in the development of our state of the art product. With our product, certified by the Nippon Kaiji Kyokai (ClassNK) as a Class A (Full Mission) Simulator, we ensure that the Instructors can utilize this efficient training environment in their Maritime Education and Training programs."

SERS™

SERS General Description:

- Certified by ClassNK (IACS Member Class Society) as a **Full Mission** Engine Room Simulator (ERS).

- All engine room systems are simulated with interactive 50+ GUI Panels. All parameters and systems across the SERS panels are interconnected.

- Meets the training requirements per STCW 2010 (with Manila Amendments) A-III/1, A-III/2, A-III/4, A-III/6.

- Certified to meet the IMO Model Course 2.07 (2017 Ed.) exercise requirements (Operational and Management Level Training).

- Duel-Fuel (DF) Main Propulsion Marine Diesel Engine

  - Long Stroke, Two Cycle, Slow Speed with 7 Cylinders. 91 RPM with 20.7 MW   power output at %100 Load.

  - Both ME-C and ME-E (Electronically Controlled) Engines w/ Dual Fuel Operation

- Provides training functions for High Voltage Training (STCW A-III/6.4)

- 3 DGs: Medium Speed, Four Stroke Super- Charged Engines. Each with 1760kW/2200kVA, 720RPM at %100 Load.

- A Shaft Generator with enough power output for navigation.

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SERS Training System: Models, Panels and GUI Modules in One Training Software:

ME Bridge Comm. Controls, Indicators and Internal Communications (Engine & Bridge Telegraph)
- ME Control in Engine Control Room
- ME Control at Brigde
- ME Local Control & Systems
- ME Air Start and Maneuvering

Engine Control Room
- ME Controls
- ME Indicators
- Power System Panels
- Remote Pump and Compressor Controls

Engine Control Room Remote Panels
- Local Control and ME Maneuvering Operations.
- ME Controls and Indicators Other Indicators Panel
- Alarms Panels and Alarms Logs
- Pumps and Compressors Remote
- Electrical Gen. Remote Panels
- ECR Circuit Breakers
- Local and Remote Syncronization Panel

Propulsion System
- Propulsion Plant: Shaft and Propeller
- Simulator, Ship, and Environmental Parameters
- Ship Resistance and Ship Speed
- ME Vibrations

Simulator, Ship, and Environmental Parameters
- Dynamic change of parameters, such as   weather type, pressures, temperatures, salinity, etc
- Observation of environmental change on engine room machinery and system parameters
- Includes NOx/SOx reduction systems
- Includes Ballast System with a Water Treatment Unit

### Electrical Generation, Distribution and Control Systems

- Three Diesel Generators and a shaft Generator with Frequency Control System
- Electrical Power Plant and Emergency Generator
- Electric Distribution (440 V., 220 V, 24 V DC) & Emergency Distribution Networks)
- Electric Consumers List and Parameter Management
- DG Control System Panels with Sync. Operations
- Circuit Breaker Panels
- Reefer Sections Power Panels
- High Voltage Control and Display Panels and Network Circuits

Includes all ME Systems and Panels, *i.e.*:

- FO/LO Systems
- Fresh Water Cooling System
- ME Bearings Monitor / ME Cylinders
- TCs and Manifolds
- ME Parameters Panel with Graphs & Reference ME Diagrams

SERS™

Engine Speed vs. Engine Power in Different Weather Conditions
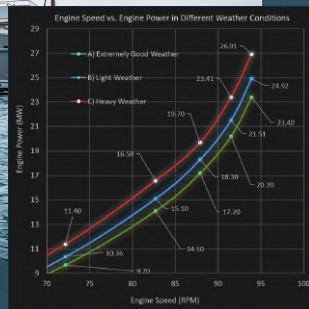
More SERS™ Features

Auxiliary Machinary and Systems and Panels
- Main Seawater Cooling
- Combined Boiler and Steam Plant Compressed Air
- Fuel Oil, Diesel Oil, Lubricating Oil, Cylinder Oil, and Fresh Water Tanks, Transfer Operations and Separator
- Stern Tube
- Steering Gear with Local & Remote Controls
- Refrigeration Plant
- Ballast Tanks & Transfer System
- FW System and Hydrophore
- Bow Thruster and Control Panel

Emergency Systems and Panels
- Main and Emergency Fire Systems
- CO_2 Fixed Fire Installation
- Emergency Response Panel with Quick Closing Valves and other emergency reponse systems

Environmental Safety
- Oily Water Separator (OWS) and Environmental Pollution Prevention Practice
- Gray Water & Sewage Treatment
- Exhaust Gas Denoxification / SCR
- NOX, SOX and Smoke Contents
- Ballast Transfer and Ballast Water Treatment

High Voltage Training
- CB Panel and High Voltage Distribution Network with Transformer
- Vacuum Circuit Breaker
- Bow Thruster with Autostarter

Energy Efficiency and Monitoring
- Energy Management and Monitoring Panel
- FW Generator (FWG)
- Combined Boiler with Economizer

Instructor Station
- Seperate Instructor Station Software, or Instructor Functions (when used in Individual Study or with ADMIN login)
- Create and Identify/Acknowledge Malfuntion Tasks
- Remote Observation of SERS Parameters at each SERS Station
- Trainee Reponse Actions and Response Time Measurement Tools (Displayed and Recorded in Training Report)

Other Training Functions
- Time Graphs (Trend Data) and X-Y Graph
- Export of the Graphs Data to Generic Spreadsheet Files
- User Login with Student or Trainee ID.
- Automatically Created Training Reports (for each User)
- Automatic Transfer of Training Reports Debriefing files
- Configuration files for individual or group study configurations
- Simulator Start with Ship Initial Conditions

SERS™

Hardware: GDS provides various control and monitoring consoles and similar hardware when realistic engine room environment is the objective of the requesting training institution.

- Monitoring Trainee using Online Education Tools
- Training Reports automatically transmitted to the Instructor.
- Debriefing Sessions using Online Education Techniques.
- Independent Evaluation of each Trainee using training reports.
- Training records for each Trainee demonstrating the completion of training objectives.

TRAINEE #1

TCP/IP

TRAINEE #2　　TRAINEE #3　　　　　　　　　　INSTRUCTOR

Trainee Station: SERS software training panels (over 50) can be distributed to individual touch screen monitors.

SERS Inctructors Station: Instructors can monitor, change dynamic parameters, inject malfunctions or events, and measure the response time of the Trainee or evaluate overall training performance, hold debriefings with Instructor Tools.

Youtube Demonstrations:
https://www.youtube.com/channel/UCdelBtervxxEA0ByjmbHrXg

SERS™

Unique Assessment Features

- A text based training report generated and transmitted to the Instructor for each trainee for each training session.

- Debriefing Tool: Screen captures generated for each user action and recorded in a historic time order, allowing to monitor and display the complete flow of the trainee actions.

- Instructor station for monitoring the training: Reaction times to malfunctions are displayed and recorded for each trainee for objective assessment. Trainee cannot see the malfunction and must identify the source of the problem using tools provided.

- SERS allows for Instructors record and maintain the training records for each trainee.

- Trainee Assessment Module with automated grading & reporting functions

SERS™

SERS SUPPORTS YOUR ONLINE
AND REMOTE TRAINING PROGRAMS

With automated training report functionality, SERS
surely is an efficient remote maritime education tool.

Workstation mode of SERS also supports online group trainings.

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