

# H869 – HV Power Distribution System – ZS1 Unigear

Training for safe operation, control, configuration, troubleshooting and maintenance of ABB Marine HV (>1 kV) air-insulated switchgear, circuit breakers and protective relays.

## Learning objectives:

Upon completion of this course, students will be able to locate hardware components, to verify and replace switchgear apparatus and to perform preventive maintenance. Students get hands-on practical with Local HMI, Web HMI and PCM600, a programming and configuration tool with actual REF615 and REF630 relays.

## Contents:

- Function description for ABB HV switchboards
- Hardware
  - Unigear ZS1
  - Circuit breakers HD4, VD4 & Vmax
  - Vacuum V contactor
  - Relion protective relays
- Operation
  - Operation and maintenance of Unigear ZS1
  - Practical on circuit breakers and contactors
- Relion relay practical hands-on
  - LHMI (front-panel user interface)
  - WHMI (web browser based user interface)
  - PCM600 (programming and configuration tool)

- Fault-tracing and troubleshooting
- Interpret alarms and fault messages
- Reset trip and block signal
- Trace digital input signals to protective relays

## Methods:

Classroom lectures;  
Demonstration and practical lessons on our training switchgear.

**Duration:** 4 days

## Student profile:

Marine engineers and electro-technical personnel at operational and management level.

## Prerequisites:

Marine Power Plant Basic for Technical staff in ABB propulsion and Marine High Voltage Safety or similar knowledge is advisable.

## Venue:

- Beijing or Xiamen, China
- Helsinki, Finland
- Genoa, Italy
- Rotterdam, Netherlands
- Singapore
- Houston, USA

## Additional information:

Minimum 6, maximum 8 participants;  
On-site training is available on request.

