

ABB Marine Academy course description

H869 - HV power distribution system - ZS1 Unigear

Course goal

The goal of this course is to train the participants in the 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 will be trained how to use CAP501/CAP505, a programming and configuration tool for protective relays.

Contents

General topics

- Introduction to ABB Marine Services
- Safety procedures while working on the switchboard
- Protection functions
- Power plant regulation principles

Hardware description

- Unigear ZS1 compartments
- Function of HD4 gas circuit breaker parts
- Function of VD4, Vmax vacuum circuit breaker parts
- Function of V vacuum contactor parts
- Function of REM545 and REF543 protective relay parts

Operation

- Removal and installation of circuit breakers
- Earth switch operations
- Check switchgear interlocks
- Navigate technical level menu in protective relays
- Download/Upload parameters to/from protective relays with CAP501/CAP505

Software introduction

- CAP501 relay setting tool
- Hands-on experience with CAP505 interface and protective relays

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



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 course or similar knowledge is advisable

Duration

4 days

Venue

Singapore
Genoa or Dalmine
Houston
Helsinki
Beijing or Xiamen
Rotterdam

Additional information

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

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Course outline

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Day 1

- Introduction
- General protection
- Power plant regulation
- Earth fault simulation exercise

Day 2

- MV switchboard Unigear
- Protective relays REM545 & REF543

Day 3

- Circuit breakers in general and SF6 gas
- HD4 circuit breaker
- Unigear exercise (circuit breaker removal & installation and safety interlocks)

Day 4

- Vacuum circuit breakers and contactors
- Protective relays practical exercises (navigation of technical level and using CAP software interface)

