Course description

G720

ACS 1000 & ACS 6000 Medium Voltage Drives Service and Commissioning combined course

Course goal

The goal of this course is to introduce and instruct the service and commissioning engineer to the ACS 1000 and ACS 6000. To allow them to learn in a safe and instructive environment the techniques required to carry out the correct procedure in commissioning, servicing and maintaining the ACS 1000 and ACS 6000.

Learning objectives

Upon completion of this course, the participants will be able to:

- Understand the drive system topology
- Carry out basic commissioning, service and maintenance work as well as fault-tracing.
- Set and tune application and motor control parameters
- Locate and replace faulty hardware components
- Using MV Drive Portal database to update the knowledge of the drive.
- Start the certification program for commissioning; after completion of the certification program the participants are allowed to commission the medium voltage drive system.

Participant profile

Commissioning engineers, testing and maintenance personnel

Prerequisites

- Good engineering knowledge of AC drives and motors
- Personal computer knowledge
- Laptop with DriveDebug and DriveWindow loaded, fiber optic programming tool (RUSB-02 or PCMCIA equivalent)
- Successful completion of the e-learning courses G711e and G761e – The participants will be enrolled automatically into the e-learning courses G711e and G761e by applying for the G720 course.

Topics e-learning courses G711e and G761e

Generalities

- ABB medium voltage drives family overview
- Three-level inverter topology, DTC control
- Options and typical applications

Control hardware ACS 1000/6000

- Main circuit diagrams
- Component and PCB functions
- PCB settings and configuration

Power hardware description

- Air cooled ACS 1000
- Water cooled ACS 1000
- ACS 1000i drive
- ACS 6000

Protection concept

- Fault classes
- Protective reactions

Topics classroom course

Generalities

- MV data base instruction
- Software compatibility and downloading sequence
- How to use software tools
- How to give a short customer training after commissioning

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Demonstration drive

- Component recognition and location
- Starting/stopping procedures
- Motor runs and tuning

Drive commissioning

- Cold commissioning procedure
- Tests and reports
- Calculation of motor parameters

Software description

- Software structure, parameter's description
- Application programming
- Fieldbus programming (interfacing with overriding system)
- Setting and tuning motor control parameters

Fault-tracing and troubleshooting

- Alarm and fault indications
- Measuring and replacing power components

Methods

- E-learnings, internet based courses
- Lectures and demonstrations
- Practical exercises with training equipment

Duration

Ca. 4 days e-learning
5 days classroom training
Max. 8 participants

Course outline (classroom training)

Day 1 (general)	Day 2 (ACS 1000)	Day 3 (ACS 1000)	Day 4 (ACS 6000)	Day 5 (ACS 6000)
■ MV data base instruction ■ Software compatibility and downloading ■ How to use software tools ■ How to give short customer training	■ Component recognition and location ■ Operation of the drive ■ Software structure, parameter's description ■ Pass codes, service parameters	■ Insulation resistance measurements ■ Preventive maintenance ■ Checking/ exchanging semiconductors ■ Troubleshooting	■ Component recognition and location ■ Operation of the drive ■ Power part commissioning ■ Application SW programming ■ Motor parameter calculation	■ Voltage and torque control SW programming ■ Preventive maintenance ■ Checking/exchanging semiconductors ■ Troubleshooting