COURSE DESCRIPTION

# G700 ACS1000 Operation & Maintenance Classroom training in Turgi, Switzerland

**Course goal**

The goal of this course is to train the participants in the safe operation, control, configuration, troubleshooting and maintenance of the ACS1000. The students will develop their knowledge, confidence and skills in the handling of ACS1000 Voltage Source Inverter.

**Main learning objectives**

The course goal is to teach students to operate, maintain and troubleshoot the ACS1000 drive, air-cooled and water-cooled units. Upon completion of this course, students will be able to locate the hardware components, to verify and replace drive's parts and to perform preventive maintenance. The use of the available programming and troubleshooting tools is trained by practical operating exercises.

**Participant profile**

Electricians, technicians and engineers who operate, maintain or troubleshoot ACS1000

**Prerequisites**

- Basic knowledge of AC motors and drives
- Basic knowledge using computers with Windows

**Topics**

**Generalities**

- ACS1000 family overview, system requirements
- AC motor and DTC control
- Drive specific safety requirements

**Hardware description (power electronics & control)**

- Component and PCB functions
- Hardware schematics and electrical drawings
- PCB settings and configuration
- ACS1000i characteristics

**Water-cooled system**

- Water circuits description
- Preventive maintenance

**Operation**

- Safety requirements
- Energize / de-energize the drive
- Local operation with drive control panel and DriveWindow tool
- Remote control

**Software introduction**

- Software structure, parameters description
- Application configuration

**Fault tracing and troubleshooting**

- Alarm and fault indications
- Checking and replacing PCB's and components
- Using DriveWindow SW tool for configuration and troubleshooting
- How to get help from ABB



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**Course type**
This is a face to face class room training with maximum 8 participants.

**Learning methods and tools**
- Lectures and demonstrations
- Practical exercises on fully operational training drive and other training equipment
- Factory visit

**Duration**
3 days

**To register:**
Please apply online (signup required):
ABB MyLearning/G700
Custom-tailored training courses or standard training at additional course dates are available on request.
Please note: The course is only carried out if at least 4 participants have been booked.

**Course outline**

| DAY 1 | DAY 2 | DAY 3 |
|---|---|---|
| — Course overview<br>— Product overview<br>— Power electronics hardware: description and function, for air cooled and water cooled drives<br>— Hands-on training: Component's location | — ACS1000i characteristics<br>— Control HW<br>— Protection concept<br>— Hands-on: Operation of the drive<br>— Factory visit | — Application SW<br>— DriveWindow<br>— Preventive maintenance<br>— Hands-on training: Troubleshooting using control panel and DriveWindow, parts measurement and replacement |

Classroom training

Hands-on training

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COURSE DESCRIPTION **ADD-ON** FOR **G700**

# G700b ACS1000 Operation & Maintenance
# G700vc ACS1000 Operation & Care
# Web-based alternatives

**Preface**
Due to travel restrictions in connection with COVID-19, the access to normal classroom trainings is limited. Therefore, we offer variants with contents delivered over web.

**Main learning objectives and topics**
The objectives and topics are the same as for the regular classroom course (see course description *G700 – ACS1000 Operation & Maintenance*), except some hands-on exercises in the Virtual Classroom variant.

**Participant profile**
Same as for regular course

**Prerequisites**
Same as for regular course

**Option 1: Blended Learning**

The training is split in 2 parts: Web-based training followed by the classroom hands-on session

Virtual Classroom part
- Content distributed over 3 days (experience has shown, that more than half a day virtual training at once is tiring and therefore not effective)
- In the mornings: Approx. 3h instructor-led virtual classroom training (e.g. via Skype)
- Interactive training with state-of-the-art online tools in small classes of 5 – 8 participants.
- In the afternoons: Approx. 1h self-learning tasks and self-assessments, trainer available for support

Hands-on part
- 2 full days of classroom training with training equipment (instead of 3 days)
- Focus on practical exercises, putting theory into practice

Advantages of Blended Learning
- Virtual classroom part is location independent; no travelling required
  → COVID-19 does not stop us from learning
- Participants have a common level of knowledge, when coming to the hands-on part
  → Time for practical exercises on the training equipment is maximized
- Combination of different learning methods is more effective
- Recalling information, which was learned earlier, strengthens the knowledge

Disadvantages of Blended Learning
- Virtual Classroom training is mainly limited to theoretical topics
  → This makes it more tiring
- No real hardware at hand during Virtual Classroom sessions
  → Makes it more difficult to visualize the knowledge
- The whole training is less compact, due to split over 2 weeks

Duration
- 3 days Virtual Classroom training
- 2 days hands-on training in our Learning Center

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**Option 2: Virtual Classroom only**

Methods
- In the mornings: Approx. 3h instructor-led Virtual Classroom training, e.g. via MS Teams. Experience has shown, that more than half a day virtual training at once is tiring and therefore not effective.
- Interactive training with state-of-the-art online tools in small classes of 5 – 10 participants.
- In the afternoons: Self-learning tasks on training equipment accessed over web, self-study and self-assessments; trainer available for support

Limitations
The following topics cannot be covered to the same degree as in the regular classroom training:
- Operation of demo unit
- Semiconductor check and replacement
- Fault finding exercises on demo unit

Those topics are taught as good as possible using videos, demonstrations, case studies, etc.

Duration
3 days Virtual Classroom training

To register
Please apply online (log in to MyLearning first): ABB MyLearning/G700

Recommended follow-up: Hands-on training
- Hands-on training in our training center can be booked separately at a later date.
- Up to 2 full days of classroom training with training equipment
- Focus on practical exercises, putting theory into practice
- Combinations with other trainings, Factory Acceptance Test, etc. possible

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