COURSE DESCRIPTION

G860 PCS6000 Operation & Maintenance
Classroom training in Turgi, Switzerland

Course goal
The goal of the course is to introduce and instruct the service and operation engineer to the PCS6000 Product Family. To allow them to learn in a safe and instructive environment the techniques required to carry out the correct procedure in operating and maintaining the PCS6000 frequency converter.

Main learning objectives
— Upon completion of this course, the participants will be able to:
— Describe the service training and authorization program
— Identify the PCS6000 configurations
— Explain the converter components and functionality
— Explain the operational sequences (control & emergency)
— Carry out standard maintenance
— Verify proper functionality of certain components
— Exchange standard parts
— Connect to IPC and use the software tools
— Carry out basic troubleshooting using service software and manuals

Participant profile
Electricians, technicians and engineers who operate, maintain or troubleshoot PCS6000. It is also a prerequisite for future commissioning & service engineers.

Prerequisites
— Electrical engineering knowledge & experience
— Laptop

Topics
— System description
— PCS6000 product overview
— Control hardware
— Power hardware
— Water Cooling Unit
— Maintenance
— Control sequences
— Troubleshooting
— Practical exercises
— Service processes

Follow-up training
— G861 Service & Commissioning

Course type
This is a face to face classroom training with maximum 6 participants.

Learning methods and tools
This is an instructor led course with lectures and demonstrations. For maximum effectiveness it’s based on a good balance between theoretical training and practical exercises with training equipment.
Duration
4 days

To register:
Please apply online (signup required):
ABB MyLearning/G860
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

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<td>— Introduction to PCS6000</td>
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<td>— Safety instructions for training unit</td>
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<td>— Hardware description</td>
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<td>— Hands-on:</td>
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<td>• Operation of the converter</td>
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<td>• Demonstration of control sequences</td>
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<td>— Exercise: Reading electrical circuit diagrams</td>
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<tr>
<td>— Converter components and functionality in detail</td>
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<td>— Introduction to manuals and reports (user manual,</td>
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<td>service manual, maintenance report, etc.)</td>
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<td>— Hands-on: Preventive maintenance</td>
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<td>• Installation inspection</td>
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<td>• DC link checks</td>
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<td>• Functionality and security procedures</td>
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<td>• GRB and GDM/GBM checks</td>
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<td>• Change IP address of IPC</td>
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<td>• Test IGCT’s and diodes</td>
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<td>• Semiconductor replacement</td>
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<td>— Hands-on: fault finding exercises</td>
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<td>— Warranty and failure reporting</td>
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<td>— Final exam</td>
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<td>— Course conclusion and feedback</td>
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Classroom training

Hands-on training

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Visit our page mylearning.abb.com
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 G860 - PCS6000 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
- 3 full days of classroom training with training equipment (instead of 4 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
- 3 days hands-on training in our Learning Center
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
— Preventive maintenance hands-on
— 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
4 days Virtual Classroom training

To register
Please apply online (log in to MyLearning first): ABB MyLearning/G860

Recommended follow-up: Hands-on training
— Hands-on training in our training center can be booked separately at a later date.
— Up to 3 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