

# T333

## System 800xA with AC 800M

### Integration of IEC61850 Devices



The goal of this course is to learn the engineering for the full integration (horizontal and vertical) of IEC 61850 devices into the Extended Automation System 800xA. This means integration through OPC directly to the HSI for status information such as Asset Optimization and integration to the AC 800M controller for demanding/fast applications such as Power Management. The .scd file, generated by the Substation Automation engineering group, is going to be imported and all necessary configurations done.

#### Course type and methods

This is an instructor led course with interactive classroom discussions and associated lab exercises. Approximately 50 % of the course is hands-on lab.

#### Student Profile

This training is targeted to system and application engineers, commissioning and maintenance personnel, service engineers and system integrators.

#### Prerequisites

Students should have attended the course T315C "Engineering with Control Builder" and T315H "Engineering with HIS" or have knowledge and experience associated with the content of this course. The required knowledge should be verified via the user assessment T710-01e "Engineering using AC 800M".

#### Course objectives

Upon completing of this course the participants will be able to:

- Describe the basics of Substation Automation and Explain the basics of the IEC61850 standard
- Describe the engineering workflow, the different engineering tools and the integration process
- Do basic network and switches configuration
- Configure an IED using ABB PCM 600 (Protection and Control IED Manager) as IED specific configuration tool
- Explain the basic handling of the engineering tools such as ABB IET, CET

#### Duration

The duration is 5 days

- Configure the IEC61850 OPC server
- Import the IEC61850 data into System 800xA
- Configure IEC61850 alarm and events
- Enhance the IEC61850 object type library
- Build IEC61850 device faceplates
- Configure CI868 card as an IED
- Import the IEC61850 data into Control Builder
- Map the IEC61850 GOOSE messages to the IEC 61131-3 application variables
- Handle redundancy of IEC61850 in AC 800M and the OPC server
- Analyse faults

#### Main topics

- Course introduction
- Introduction Substation Automation
- IEC61850 standard
- System integration principals
- IEC61850 network
- ABB PCM 600
- ABB IET (Integrated Engineering Tool)
- ABB CET (Communication Engineering Tool)
- IEC61850 OPC server
- Import .SCD file in System 800xA
- IEC61850 Alarm and Events
- IEC61850 Object types enhancement
- Vertical redundancy
- CI 868 card as IED (Intelligent Electrical Device)
- GOOSE engineering in IET
- GOOSE engineering in PCM600
- Import.SCD file in Control Builder M
- GOOSE engineering in Control Builder M
- Horizontal redundancy
- Fault analysis

Course Outline				
Day 1	Day 2	Day 3	Day 4	Day 5
Course overview	EC61850 network	ABB CET	IEC61850 object	GOOSE engineering in
Introduction Substation	ABB PCM 600 (Protection and	(Communication	types enhancement	PCM600
Automation	Control IED Manager) as IED	Engineering Tool)	Vertical redundancy	Import.SCD file in
IEC61850 standard	specific configuration	IEC61850 OPC server	CI868 card as IED	Control Builder M
System integration	ABB IET (Integrated	Import .SCD file in	(Intelligent Electrical	GOOSE engineering in
principals	Engineering Tool)	System 800xA	Device) in CBM	Control Builder M
		IEC61850 alarm and	GOOSE engineering	Horizontal redundancy
		events	in IET	Fault analysis