CHH631 – Gearless Mill Drive Troubleshooting with PSR2 Controller

Course goal

The goal of this course is to provide participants with the required practical knowledge and information on the troubleshooting of the gearless mill drive utilizing PSR2 controller.

The participants will learn and understand the GMD system from the point of view of software and hardware, highly focused on advanced troubleshooting techniques and root cause finding, to increase the knowledge of the people at site for faster faultfinding.

Main learning objectives

The participants will be able to:
— Understand the hardware and software principles as well as the control philosophy of a GMD control system
— Implement fault tracing and troubleshooting, based on the drive windows and FUPLA, electrical variables, transient recorder, Hioki recorder waveforms and event list
— Utilize fault messages and analysis, software download and backups of CPU, FUPLA debugger and diagnostic, download control panel software

Participant profile

This training is targeted to electricians, technicians and site engineers as well as shift maintenance and service personnel, which need an advanced understanding of the GMD PSR2 control philosophy and troubleshooting.

Prerequisites

Participants must have a basic electro technical background. It is recommended that the participant successfully completed the *Gearless Mill Drive – Theoretical System Overview* (CHH621) and the *Gearless Mill Drive – Operation and Maintenance* (CHH624) courses.

Topics
— Overview of the GMD control system and the interaction between components (advanced level)

— Hardware communication and interconnections between PLC, PSR2 and control panel
— Software operation and protection focused on troubleshooting and fault tracing within the application
— Control philosophy
  - Analysis of special functions built in the PSR2 controller
    - Power lost ride through
    - Load shedding
  - Control and protection aspects
    - Critical interlocks
    - Non-critical interlocks
    - Permissive interlocks
    - Alarm/trip conditions
  - Fault tracing and trending analysis
  - Speed and current control loops
— Transient recorder analysis of electrical variable and status (advanced level)

Course type and methods

This is an instructor-led course and includes classroom training, discussions and group works.

Duration

The duration is 4 days.

Remarks

This theoretical course can be delivered at:
— Customer site
— ABB training center in Switzerland
— ABB local training center with PSR2 availability

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Course map

	DAY 1	DAY 2	DAY 3	DAY 4

Topics	Welcome, personnel introduction
	Course overview
	Introduction to PSR2
	PSR2 block diagram
	PSR2 hardware description
	PSR2 hardware units
		Review day 1
		PSR2 software
		   Interconnection and interaction
		   Basic functions of PSR2
		Software description
		PSR2 communication software (FUPLA)
		Exercise: Going online with FUPLA diagnostic and debugger
			Review day 2
			PSR2 software and functions
			Transient recorder
			Exercise: Using the transient recorder
			Exercise: Download and installation of software on PSR controller and the control panel
				Review day 3
				Overall review and summary
				Questions and answers
				Evaluation
				Course close

Time	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm

Typical course layout (time or sequence may change)