
COURSE DESCRIPTION

CHH627 – Gearless Mill Drive PSR2 Controller

Course goal

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

Main learning objectives

The participants will be able to:

- Understand the structure of software and the basic functions
- Connect to PSR2 Controller
- Create PSR2 system backups
- Download software to CPU and control panel of PSR2
- Perform PSR2 hardware troubleshooting
- Perform polling, debugging, fault tracing and diagnostics

Participant profile

This training is targeted to field service engineers.

Prerequisites

Participants should have basic electro technical background.

Topics

1 Drive control system

- PSR2 controller hardware
- Operation of synchronous motor
 - Vector control
 - Motor equivalent circuit
 - Motor curves
- PSR2 software structure and configuration

– Functions

- Voltage based flux calculation
- Controlling the motor torque
- Voltage and flux
- Torque
- Power 2

2 Faults and troubleshooting

- Transient recorder
- Typical wave forms
- Normal operation wave forms
- Software download
- Firmware and dip switch settings
- Panel and PSR configuration
- How to print a PSR2 software in pdf
- Polling variables online
- Debugging mode
- Diagnostic
- Manager structure configuration
- Device addressing
- Parameter changing

3 Examples and practical information

- Operation manual
- Circuit diagram
- PSR software
 - Main segments
 - Main logic
 - Main controls
 - Fault logic

To be continued on next page...

- Mill operation modes
 - Inching mode (positioning)
 - Creeping mode
 - Normal mode
 - Reduce mill rocking
 - Manual lowering
 - Optional command buttons
 - Turn 180°
 - Frozen charge remover
- Principle of operation and regulation
 - Speed control
 - Flux control
 - Current control
 - Excitation control
 - Operation functions
 - Frozen charge protection
 - Load shedding function
 - Speed calculation for the ring motor
 - Air gap measure and protection

Course type and methods

This is an instructor led course and includes class room training, discussions, demonstrations and associated practical hands-on activities (**depending on drive availability**).

Duration

The duration is 3 days (4 days on request by customer, with additional practical exercises).

Remarks

This course can be delivered:

- On-site, ideally after completion of commissioning of corresponding GMD system
- In Switzerland in our E-house training center)

Course map

	DAY 1	DAY 2	DAY 3	DAY 4 (OPTIONAL)
Topics	Welcome, personnel introduction	Review day 1	Review day 2	Review day 3
	Course introduction	2 Faults and troubleshooting	3 Examples and practical information	Additional practical exercises
	1 Drive control system	Transient recorder	Operation manual	Questions and answers
	Hardware	Typical wave forms	Circuit diagram	Evaluation
	Operation of synchronous motor	Normal operation wave forms	PSR software	Course close
	Vector control	Software download	Main segments	
	Motor equivalent circuit	Firmware and dip switch settings	Main logic	
	Motor curves	Panel and PSR configuration	Main controls	
	Software structure and configuration	How to print a PSR software (in pdf)	Fault logic	
	Functions	Polling variables	Mill operation modes	
	Current based flux calculation	Debugging mode	Inching mode (positioning)	
	Controlling the motor torque	Diagnostic	Creeping mode	
	Voltage and flux	Manager structure configuration	Normal mode	
	Torque	Device addressing	Reduce mill rocking	
	Power	Parameter changing	Manual lowering	
			Optional command buttons	
			Turn 180°	
			Principle of operation and regulation	
			Speed control	
			Flux control	
		Current control		
		Excitation control		
		Operation functions		
		Frozen charge protection		
		Load shedding function		
		Speed calculation for the ring motor		
		Air gap measure and protection		
		If there is no day 4:		
		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)