

# Operation & Maintenance Training

## Minerals Slurry Analysers with a Product Support Agreement



### Course Overview

Operation and Maintenance Training for 200 or 300 Series XRF elemental or PSM ultrasonic particle size Minerals Analysers and sampling equipment is a four day course that you should attend if you are directly involved in ensuring your significant equipment investment in sampling and on line analysis has high availability and accuracy. Participants will be able to operate and maintain the equipment smarter, safer, more consistently and more effectively.

The course is delivered at your site. Classroom and practical syllabus elements are strongly focused on your people and your sampling and analysis system.

The course is only available to sites that have a current Product Support Agreement because we know that once people complete the course they are always energised and keen to apply their new-found knowledge. They will inevitably have questions and need further support to implement changes to improve the operation & maintenance of the equipment to the next level of performance.

### Who Should Attend

End-user Maintenance and Operators, Metallurgical technicians, Instrumentation/Electrical technicians and engineers, Plant Metallurgists, Supervisors and Metallurgists who will be involved in operation & maintenance of any or all of the following Thermo Scientific slurry sampling & analysis equipment: Minerals Slurry Analysers and sampling equipment including AnStat 200, 220 and 230, AnStat-330, SamStat-20 and 30, MSA Mk5.0, Mk5.1, Mk5.2 and MSA-330, PSM-400MPX, WinISA version 2.2x software, Nautilus PSM software and all the related process samplers.

Since most maintenance is done by the end-users, this allows the Thermo Fisher service engineers to focus on maintaining the next level of end-user training and on optimising accuracy. This service & support is able to be provided under the Product Support Agreement.

## Minerals Slurry Analysis & Sampling Training Course Selection Guide

TRAINING COURSE					
<i>Trainees Who Attend</i>	Operation & Maintenance (at Commissioning)	Operation & Maintenance (with a Product Support Agreement)	Factory Operation & Maintenance Training	Accuracy Maintenance (with a Product Support Agreement)	Advanced Accuracy (with a Product Support Agreement)
Location	Your Site	Your Site	Factory	Your Site	Your Site
Duration	2-3 days	4 days	4 days	5 days	5 + 4 days
Maintenance Operators	1	2	2		
Metallurgical Technicians	1	2	2	3	4
Instrumentation / Electrical	1	2	2		
Plant Metallurgist, Lab or Operations Supervisors	1	1		2	3
Plant/Operations Managers or Senior Managers	1			1	

1 = Start here first

2 = Second training to attend

3 = Third training to attend

4 = Fourth training to attend

### Learning Outcomes

Attendees who complete the course will be able to safely and effectively perform the operation and recommended maintenance of Thermo Scientific 200 or 300-series or PSM slurry sampling & analysis equipment with only partial support from Thermo Fisher Scientific service engineers and other support services. They will have a clear understanding of how the Thermo Scientific sampling & analysis equipment is able to be used to optimise the process, and the knowledge to interpret the current equipment status and start making improvements.

### Prerequisites

Minimum: Current Product Support Agreement

Optimal: Able to recognise the basic system components (sampling, analyser, computer) and their overall purpose. Attended Operation & Maintenance training during system commissioning.

### Your Business Benefits

Operations will see these immediate and ongoing benefits from investing in training on the Operation and Maintenance for 200 or 300 Series or PSM Minerals Slurry Analysers and sampling equipment:

- Scheduled maintenance tasks are performed smarter, safer, more consistently and more effectively
- Better sampling & analysis system availability
- Better sampling & analysis system accuracy
- Greater confidence in the assay data provided by the sampling and analysis equipment



## Training Course Syllabus

### 200 or 300 Series Analysers

1. Overview of the multi-element probe, sample presentation, measurement, analysis and reporting techniques.
2. Multi-Element Probe
  - a. Components & their functions
  - b. Probe cooling system
  - c. Source safety
  - d. Practical – safety, operation, maintenance
3. Signal Analyser
  - a. Components & their functions
  - b. Setup
  - c. Health condition checks
  - d. Practical
4. Sample presentation system
  - a. Primary sampling
  - b. The Measurement Zone
  - c. Calibration and shift sampling
  - d. Practical & observations
5. Analyser – Probe Support Functions
  - a. Multiplexing
  - b. Hoist/Carriage
  - c. Probe protection
  - d. Water sprays
  - e. Metallurgical Samplers
  - f. Practical
6. Software
  - a. The server
  - b. WinISA structure
  - c. WinISA operation modes: Normal, Standardisation, Calibration
  - d. WinISA backup
  - e. Practical
7. Standardisation
  - a. Why, How, When
  - b. Practical and troubleshooting
8. Calibration
  - a. Calibration maintenance tasks
  - b. Using the RARP regression program
  - c. Practical
9. Maintenance Schedule
  - a. Review and agree on what scheduled maintenance, when and who does it

### PSM-400MPX

1. Overview of the particle size monitor's sample presentation, measurement, analysis and reporting techniques and requirements.
2. Sample Intake and Conditioning System
3. Water plumbing tree
4. Sample conditioner
  - a. Hardware function
  - b. Control panel
5. Sample presentation and measurement
  - a. Sample Analysis Module
  - b. Ultrasonics
6. Control and Display Module
7. Standardisation Water Module
8. Operation
  - a. Theory
  - b. Practical
9. Maintenance
10. Standardisation method
11. Sample Collection
12. Server - Nautilus software
  - a. Communications
  - b. Calibration and Monitoring
  - c. File Wizard
  - d. Autocomm and Autocon
  - e. Practical
13. Troubleshooting
  - a. Theory
  - b. Practical

### About the Trainers

All Thermo Fisher Scientific Operation & Maintenance trainers for 200 or 300 Series or PSM Minerals Slurry Analysers and sampling equipment have a high standard of competency tested experience in commissioning, maintenance and support of the equipment and its users. The training material has been designed and created by a team led by our qualified training coordinator, and the trainers have been trained by the training coordinator to ensure you always receive a consistently high standard of training and service.

## About Thermo Fisher Scientific

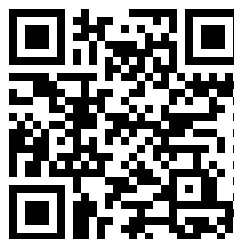
Thermo Fisher Scientific is the original equipment manufacturer for all the 200 and 300 Series Minerals Slurry Analysers and sampling equipment including AnStat 200, 220 and 230, AnStat-330, SamStat-20 and 30, MSA Mk5.0, Mk5.1, Mk5.2, MSA-330, PSM-400MPX, WinISA version 2.2x software, Nautilus PSM software and all the related process samplers.

Thermo Fisher Scientific is the world leader in serving science, with revenues of more than \$20 billion and approximately 70,000 employees globally. Our mission is to enable our customers to make the world healthier, cleaner and safer. We help our customers accelerate life sciences research, solve complex analytical challenges, improve patient diagnostics, deliver medicines to market and increase laboratory productivity. Through our premier brands – Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific and Unity Lab Services – we offer an unmatched combination of innovative technologies, purchasing convenience and comprehensive services.

## Contact Us

To find out more about training you and your maintenance team who look after the 200 or 300 Series or PSM Minerals Slurry Analysers and sampling equipment, and other ways Thermo Fisher Scientific can help your business:

- Go to [www.thermofisher.com/mineralservice](http://www.thermofisher.com/mineralservice)
- Contact your local Thermo Fisher Scientific sales or service person



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