

# Operation & Maintenance Training at Commissioning

## Minerals Slurry Sampling and Analysis



### Course Overview

Operation and Maintenance Training for 300 Series XRF elemental or PSM ultrasonic particle size Minerals Analysers and sampling equipment is a two or three 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. Duration depends on the mix of sampling and analysis equipment you have being commissioned, and on the roles and number of the people you need trained.

If you do not already have a Product Support Agreement (PSA) in place, we strongly recommend you commence a PSA straight after commissioning 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 and 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 and maintenance of any or all of the following Thermo Scientific sampling and analysis equipment: 300 Series Minerals Slurry Analysers and sampling equipment including AnStat-330, SamStat-30, MSA-330, WinISA version 2.2x software, PSM-400MPX, Nautilus PSM software, and all the related process samplers.

## 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 to 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	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**

Since most maintenance is done by the end-users, this allows the Thermo Fisher Scientific service engineers to focus on maintaining the next level of end-user training and on optimising accuracy. This service and support is able to be provided under a Product Support Agreement. Since most maintenance will be done by the trained end-users after they have completed the course, this allows the Thermo Fisher Scientific service engineers to focus on maintaining the next level of end-user training and on optimising accuracy. This service and support is able to be provided under the Product Support Agreement.



### Learning Outcomes

Attendees who complete the course will be able to safely and effectively perform the operation and recommended maintenance of Thermo Scientific 300-series or PSM sampling and 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 and 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

Operations, Metallurgy, Instrumentation/Electrical or Laboratory experience in your plant.

### Your Business Benefits

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

- Scheduled maintenance tasks are performed safely, consistently and more effectively
- High sampling & analysis system availability
- High sampling & analysis system accuracy
- Operations and Metallurgy confidence in the assay data provided by the sampling and analysis equipment

## Training Course Syllabus

### 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 and Resolution
  - 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
8. Calibration
  - a. Calibration maintenance tasks
  - b. 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

The course allows your personnel to focus on learning by taking them away from the day-to-day interruptions of their normal work environment.

The course is also an opportunity to meet people from other sites with similar equipment, and to share knowledge, experience and best practices.

## About Thermo Fisher Scientific

Thermo Fisher Scientific is the original equipment manufacturer for all the 300 Series Minerals Analysers and sampling equipment including AnStat-330, SamStat-30, MSA-330, WinISA version 2.2x software, PSM-400MPX, 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.

## About the Trainers

All Thermo Fisher Scientific Operation & Maintenance trainers for 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.

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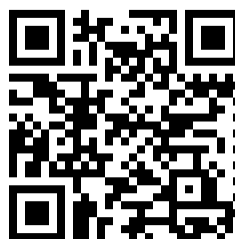
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## Contact Us

To find out more about training you and your maintenance team who look after the 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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