



# SWAGelok

## SAMPLING SYSTEMS TRAINING

- Sampling System Problem-Solving & Maintenance
- Process Analyzer Sampling Systems: PASS 1 / PASS-SUBSYSTEMS
- Process Analyzer Sampling Systems: PASS PLUS



Swagelok®

Swagelok Pittsburgh | Tri-State Area

# SAMPLING SYSTEM PROBLEM-SOLVING AND MAINTENANCE TRAINING (SSM)

**Duration:** TWO DAYS

## Target Audience:

Sampling System Technicians and Reliability/Maintenance Personnel

### Specifics: Top 3 Learnings:

- Gain a better understanding of sample system components (valves, regulators...) and their roles within the system; Diagnose and troubleshoot sample system errors; Learn sample system maintenance techniques.

### Expected Outcomes:

- You'll have the skills needed to maintain sampling systems, troubleshoot problems, and take steps toward corrective action.

### Overall Agenda:

- Performance of Sample Systems; Diagnosing and Fixing Time-Delay Problems; System Components; Sample Conditioning Techniques.

### Cost-per-Student:

- **Call for pricing**

### Location:

- **TBD**

### Other:

- Continental breakfast and lunch provided each class day.

# PROCESS ANALYZER SAMPLING SYSTEMS (PASS 1)

**Duration:** FIVE DAYS

## Target Audience:

Analytical System Engineers, System Design/Instrumentation Engineers

### Specifics: Top 3 Learnings:

- Introduce the main components of an effective sampling system for process analyzers; Identify the three performance goals of a sampling system that must be achieved; Understand common reasons for less than optimal system performance.

### Expected Outcomes:

- You'll become fully versed in design fundamentals and principles of sampling systems.

### Overall Agenda:

- Introduction to Sampling; Sampling Hardware; Sample Transport; Phase Change; Complete System Design.

### Cost-per-Student:

- **Call for pricing**

### Proposed Location:

- **TBD**

### Other:

- Continental breakfast and lunch provided each class day.



# PROCESS ANALYZER SAMPLING SYSTEMS (PASS-SUBSYSTEMS)

**Duration:** FIVE DAYS

## Target Audience:

Analytical System Engineers, System Design/Instrumentation Engineers

## Specifics: Top 3 Learnings:

- Identify the five subsystems that are common to all analyzer sampling systems; Explore different ways to set up the subsystems to optimize the overall system; Examine the functions that might be performed on the sample in each subsystem.

## Expected Outcomes:

- You'll be able to confidently build and design at least five of the most common subsystems in a sampling system.

## Overall Agenda:

- Key Principles of Sampling; Basic Calculations for Sampling Systems; Introduction to Sampling Subsystems; The Sample Extraction Subsystem; The Field Preconditioning Subsystem; The Sample Conditioning Subsystem; The Calibration and Switching Subsystem; The Sample Disposal and Utility Subsystem; Team Design Project.

## Cost-per-Student:

- Call for pricing

## Proposed Location:

- TBD

## Other:

- Continental breakfast and lunch provided each class day.

# PROCESS ANALYZER SAMPLING SYSTEMS (PASS PLUS)

**Duration:** FIVE DAYS

## Course Specifics/Description:

*"A **5-Day** hands-on class that blends traditional PASS concepts with evaluation and advisory services by targeting issues and problems identified by the customer at the customer site. Enables customers to take a deep dive into the problems and challenges they face each day - with classroom instruction on the best ways to overcome these issues through proper system design and component selection."*

## Expected Outcomes:

*"Upon completion, attendees will have a more thorough understanding of sampling system terminology, concepts, and principles. Graduates will also have a better awareness of how these ideas relate directly to the issues and challenges they face at their site. Participants will gain experience developing solutions to local issues in a way that enables them to connect the classroom concepts with field-based practice. **Swagelok will provide design recommendations and assist the customer in creating a plan to remedy any issues/problems discovered on-site.**"*

- Call for pricing
- **MUST BE CONDUCTED AT YOUR PROJECT SITE.**



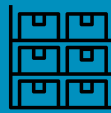
## Swagelok Pittsburgh | Tri-State Area

We deliver superior Swagelok Products and Strategic Services to help you stay safe, on-time, on-plan, and on-budget – no matter how challenging your Fluid-System work. ***We're Always Right "Here" for You!***



### LOCAL

- Serving Western and Central PA and Surrounding Counties in OH, WV, MD
- Emergency Pick-Ups/Deliveries
- **99.99%** Shipping Accuracy



### INVENTORY

- **3,000 SKUs/\$1,000,000+** Parts Always in Stock
- **15,000 sq. ft.** Warehouse and Staging Area – ***or we can manage your materials on-site***
- Flexible Project Logistics



### EXPERTISE

- **8-Strong** Dedicated Technical Sales Team
- **5** Engineers
- Fluid-System Troubleshooting
- Commissioning Assistance



### TRAINING

- Over **20** Class Titles, including *Process Analyzer Sampling Systems, Orbital Welding, Fitting Installation & Tube Bending Safety, and Advanced Tube Bending*



### RENTALS

- More than **30** Tools Stocked: Orbital Welders, Multi-Head Hydraulic Swaging Units, Benchtop and Electric Benders



### Contact Us:

**P:** 412.761.3212

 [pittsburgh.swagelok.com](http://pittsburgh.swagelok.com)

### Follow Us:



@SwagelokPGH



SwagelokPittsburgh



Swagelok Pittsburgh | Tri-State Area