

Daniel

Daniel has brought acclaimed gas and liquid fiscal flow measurement products, services and systems to the oil and gas industry. Around the world, the Daniel name is synonymous with quality, reliability and commitment to serving its customers.

Introduction to Gas Chromatographs

Course D4110

Overview

This 3-day course gives students a basic understanding of how a gas chromatograph works in natural gas or energy measurement emphasize chromatograph fundamentals and basic theory, and provide all necessary equipment and important handouts.

Prerequisites

Knowledge of flow measurement.

Topics

- Chromatography Principles and Their Applications to Gas Measurement
- Chemistry, Flow Configuration and Carrier Calibration Gas Systems
- Sample Systems
- Basic Analyzer Hardware
- Timed Events, Retention Times and Response Factors
- Data Calculations and Control Parameters
- Reading Chromatographs
- Identifying Gas Components
- Calibrating a Gas Analyzer
- Basic Software Operation

Price \$1,430

Location Houston, TX **Start Dates 2009** 2/11, 8/5

Introduction to Natural Gas Orifice Flow Metering

Course D4120

Overview

This 3-day course introduces participants to the principles, application, operation, calculation and maintenance of meters that measure gas.

Prerequisites

Basic knowledge of flow measurement.

Topics

- The skilled instructor and course material emphasize natural gas during the three-day session. The course begins with a definition of flow measurement and includes the common terms of gas measurement. Students will learn about flow meters as well as principles of meter operation and systems. The instructor will also cover details of each meter, explaining why they are accurate and how they can become inaccurate.

Price \$950

Location Houston, TX **Start Dates 2009** 6/25

Operation & Maintenance of Gas Chromatographs

Course D4210

Overview

This 5-day course is appropriate for those who have either worked with a chromatograph for at least 6 months or completed 'Introduction to Gas Chromatographs'. It prepares participants to operate and/or repair a gas chromatograph.

Prerequisites

Knowledge of flow measurement.

Topics

- Hands-on Learning that Spells Out What a Chromatograph is, How it Operates and What it Does to Analyze Natural Gas
- Study Carrier and Calibration Gas Systems, Chromatograph Hardware
- Installation and Operation of MON 2000 Software and Many Other Details
- Identify Problems, Set Timed Events, Prepare Samples and Learn Preventive Maintenance Procedures
- Troubleshooting, Spare Parts and Necessary Service Tools

Price \$1,430

Location Houston, TX **Start Dates 2009** 1/12, 2/16, 3/16, 4/13, 5/4, 6/8, 7/13, 8/10, 9/14, 10/5, 11/2, 12/7



To enroll in Daniel courses please call 713-827-6314. For additional contact information refer to the appropriate contact on page 119. Updated dates & locations are available on our website at www.emersonprocess.com/education.



Operation and Maintenance of Gas Ultrasonics

Course D4230

Overview

This 5-day course from an experienced Daniel instructor will instruct students to install, operate and maintain a Daniel Ultrasonic Gas Flow meter.

Prerequisites

Basic knowledge of flow measurement.

Topics

- Basics of Sound Waves
- How an Ultrasonic Flow Meter Works and its Advantages Over Other Technologies
- Performance Characteristics of Transit Time Ultrasonic Flow Meters
- Meter Mechanics
- System Components for Mark II and Mark III Electronics
- Removal and Installation of Transducer Assemblies
- Volumetric and Mass Ultrasonic Gas Flow Measurement
- Meter Installation Considerations
- Meter Operation, Performance Characteristics, Calibration and Field Checks
- Mechanical Installation of the Meter
- Electronics Assembly
- Making Electrical Connections
- Communication Settings.
- Commissioning the System
- Maintenance and Troubleshooting
- Functions of Customer Ultrasonic Interface (CUI) Software and the Ultrasonic Transducer Extractor Tool

Price \$1,430

Location
Houston, TX

Start Dates 2008
1/26, 4/6, 6/1, 7/20, 8/17,
9/28

Operation & Maintenance of DL8000

Course D4410 NEW

Overview

This 3-day course equips students with a full understanding of this preset-system, electronic, bulk-loading batch controller. An experienced instructor and focused material enable students to operate and diagnose the DL8000.

Prerequisites

Basic knowledge for flow measurement.

Topics

- System Components Controlled by the DL8000
- Setup Parameters
- Primary and Secondary Alarm Operations
- Operation of Daniel Loading Rack, Turbine Meters and Digital Flow Control Valves
- Meter Proving
- Hardware Diagnostics and Troubleshooting
- Configuring Dynamic, Real-Time Display of Flow Parameters
- Configuring for Additive Injection and Temperature Compensation and Data Communications/Logging
- Troubleshooting and Repairing the Control Valve and Turbine Meter
- Electronics Troubleshooting
- Blending Methods and Flow Sequencing

Price /Location/Start Date:

Call to Discuss

Introduction to M2000 Sr. Orifice Fitting

Course D4420 NEW

Overview

This 1-day course is for the beginner or experienced technicians. The students will learn the operation and how to repair and troubleshoot the Model 2000.

Prerequisites

Basic knowledge for flow measurement.

Topics

- Theory of Operation
- "C" Style vs. Model 2000
- Maintenance
- Operating Instructions
- Installation
- Hands-on Learning
- Troubleshooting
- New Features of M2000

Price /Location/Start Date:

Call to Discuss

Operation & Maintenance of DanLoad 6000™ Preset

Course D4240

Overview

This 3-day course equips students with a full understanding of this preset-system, electronic, bulk-loading batch controller. An experienced instructor and focused material enable students to operate and diagnose the DanLoad 6000.

Prerequisites

Basic knowledge of flow measurement.

Topics

- System Components Controlled by the DanLoad 6000
- Setup Parameters
- Primary and Secondary Alarm Operations
- Operation of Daniel Loading Rack, Turbine Meters and Digital Flow Control Valves
- Meter Proving
- Hardware Diagnostics and Troubleshooting
- Configuring Dynamic, Real-Time Display of Flow Parameters
- Configuring for Additive Injection and Temperature Compensation and Data Communications/Logging
- Troubleshooting and Repairing the Control Valve and Turbine Meter
- Electronics Troubleshooting
- Blending Methods and Flow Sequencing

Price /Location/Start Date:

Call to Discuss

Operation and Maintenance of PetroCount™ Preset

Course D4241

Overview

The 3-day Petrocount course equips students with a full understanding of this preset-system, electronic, bulk-loading batch controller. An experienced instructor and focused material enable students to operate and diagnose the Petrocount.

Prerequisites

Basic knowledge of flow measurement.

Topics

- System overview: Digital Valve Overview, Temperature and Pressure Compensation Dual Phase Pulse Security, Additive Injection, Serial Data Communication, Digital Inputs and Outputs, and Relay Outputs
- Hardware Configuration: Board Layout, Terminal Wiring, and Operator Interface
- Software Configuration
- Petrocount Communications: Utility Program
- Startup and Operation
- Hands-On Training
- Troubleshooting the Petrocount: Tests and Diagnostics, and Spare Parts List
- Troubleshooting and Repairing the Control Valve and Turbine Meter

Price /Location/Start Date:

Call to Discuss

Operation and Maintenance of the Daniel Compact Prover™

Course D4270

Overview

This 3-day course covers the operation, installation and maintenance of the Daniel Compact Prover™.

Prerequisites

Basic knowledge of flow measurement.

Topics

- Theory of Operation: Double Chronometry and Specifications
- Overview of the Parts Which Make up the Compact Prover such as Actuator Assembly, Pneumatic Spring Chamber, Piston and Poppet, Optical Switches, Hydraulic Motor and Pump, and Solenoid Valve
- Installation: Prover and Meter Location, Nitrogen Spring Plenum Setting, and Power Requirements
- Troubleshooting and Repair of: Safety Barriers, Seal and O-ring Replacement, Safety Barriers, Detector Switches, Interface Board, Hydraulic and Nitrogen System, and Spare Parts
- Overview of Calibration: Seal Leak Test, Upstream and Downstream Calibration, and Waterdraw Data Sheet
- Overview of Prover Electronics: Programming, Input and Data Modes Using Software/Local Display, Circuit Module Description, and Diagnostics

Price /Location/Start Date:

Call to Discuss

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Operation and Maintenance to Control Valves and Turbines

Course D4290

Overview

This 3-day course covers the operation, installation and maintenance of the Daniel control valves and turbines.

Prerequisites

Basic knowledge of flow measurement.

Topics

- Theory of operation: Turbines, Valves, Digital Pilots
- Disassembly and Reassembly of Turbine Internals
- Disassembly and Reassembly of Valve Cylinder Assemblies
- Disassembly and Reassembly of Digital Pilots
- Valve Needle Valve Adjustment
- 'A' series vs. 'B' Series Control Valves
- Turbine Pick-Off Sensor and Preamp
- Flow Conditioning
- Parity vs UMB Series Turbine Meter
- Troubleshooting

Price/Location/Start Date:

Call to Discuss



Advanced Natural Gas Orifice Flow Metering

Course D4320

Overview

This 3-day course is appropriate for people experienced with gas measurement and orifice meters.

Prerequisites

Basic knowledge of flow measurement.

Topics

- The Daniel instructor will present the latest concepts of design and equipment use. During three days of learning, participants will move through the design of a meter station, including contract requirements, single versus multiple, tubes, design problems and economics versus accuracy.
- The course advances students' understanding of measurement accuracy, influences on measurement, new metering concepts and what lies ahead for the U.S. and world gas industries.

Price/Location/Start Date:

Call to Discuss

Model 500/1000 Advanced Gas Chromatographs

Course D4310

Overview

This 5-day course is most valuable to those with 3 years of chromatography experience, or those who have completed the introductory Daniel Operation and Maintenance of Gas Chromatograph course. Participants will develop an advanced understanding of gas chromatograph operation, troubleshooting and maintenance. Training even becomes "customized" when students present a chromatograph sales order number and application information. Given that data, the experienced Daniel instructor will look closely at specific applications and offer participants insight.

Prerequisites

D4210 Operation and Maintenance of Gas Chromatographs

Topics

- Chromatograph Flow Configurations
- Valve Overhaul
- Thermal, Conductivity, Flame Ionization and Flame Photometric Detectors
- Sample/Carrier/Calibration Gas Systems
- 2350A Controller Hardware
- Installing and Using MON (Monitoring) Software for Integration and Calibration
- Setting Timed Events, Retention Times and Response Factor Calculations
- Start-Up Procedures
- Setting Valve Timing and Flows with Different Flow Configurations
- Checking for Proper Separation and Analyzing Gas Chromatographs
- Verifying that the Chromatograph is Operating Properly
- Troubleshooting the Chromatograph and 2350A Controller
- Configuring Reporting Details and Control Outputs
- Preventive Maintenance Service Procedures
- Communications and Modbus Registers
- Spare Parts and Tools

Price \$1,430

Location
Houston, TX

Start Dates 2009
3/23, 6/15, 9/21, 11/9

Model 700 Advanced Gas Chromatograph

Course D4330

Overview

This 5-day course is most valuable to those with three years of chromatography experience, or those who have completed the introductory Daniel Operation and Maintenance of Gas Chromatograph course. Participants will develop an advanced understanding of gas chromatograph operation, troubleshooting and maintenance. Training even becomes "customized" when students present a chromatograph sales order number and application information. Given that data, the experienced Daniel instructor will look closely at specific applications and offer participants even more insight.

Prerequisites

D4210 Operation and Maintenance of Gas Chromatographs. Students should also be proficient in personal computer operations and have a basic knowledge of flow measurement.

Topics

- Chromatograph Flow Configurations
- Valve Overhaul
- Thermal, Conductivity, Flame Ionization and Flame Photometric Detectors
- Sample, Carrier and Calibration Gas Systems
- Model 700 Hardware
- Installing and Using MON (Monitoring) Software for Integration and Calibration
- Setting Timed Events, Retention Times and Response Factor Calculations
- Start-Up Procedures
- Setting Valve Timing and Flows with Different Flow Configurations
- Checking for Proper Separation and Analyzing Gas Chromatographs
- Verifying that the Chromatograph is Operating Properly
- Troubleshooting the Model 700 GC
- Configuring Reporting Details/Control Outputs
- Preventive Maintenance Service Procedures
- Communications and Modbus Registers
- Spare Parts and Tools

Price \$1,430

Location Houston, TX
Start Dates 2009 2/23, 5/11, 8/24

Operation and Maintenance of Liquid Ultrasonic Flowmeters

Course D4280

Overview

This 4-day course from an Daniel instructor will instruct students to install, operate and maintain a Daniel Liquid Ultrasonic Gas Flow meter.

Prerequisites

Basic knowledge of flow measurement.

Topics

- Basics of Sound Waves
- How an Ultrasonic Flow Meter Works and its Advantages Over Other Technologies.
- Performance Characteristics of Transit Time Ultrasonic Flow Meters
- Meter Mechanics
- System Components and Mark III Electronics
- Removal and Installation of Transducer Assemblies
- Gas Flow Measurement Calculations
- Meter Installation Considerations
- Meter Operation, Performance Characteristics, Calibration and Field Checks
- Mechanical Installation of the Meter
- Electronics Assembly
- Making Electrical Connections
- Communication Settings
- Commissioning the System
- Maintenance and Troubleshooting
- Functions of Customer Ultrasonic Interface (CUI) Software
- Master Meter and Proving a Liquid Ultrasonic

Price \$1,430

Location Houston, TX
Start Dates 2009 4/27, 10/26

Operation and Maintenance of Daniel S600 Flow Computers

Course D4260

Overview

This 2-day course provides students with an appreciation of the operation, design, capabilities and configuration of the S600 flow computer. This hands-on course deals with file transfer and machine recovery as part of the maintenance scope. The instructor will make use of the latest configuration software. Full supporting literature will be made available to all students.

Prerequisites

Basic knowledge of flow measurement.

Topics

- Introduction to the S600
- Board Removal and Layout
- Keypad Access and Security
- Menu Navigation
- Data/Mode Changing
- Alarm Handling and Configuration
- Configuring and Generating Reports
- Application Specific Functions
- Cold/Warm Starting Modes
- File Back-Up and Download
- Using the Configuration Software

Price \$1,045

Location Houston, TX
Start Dates 2009 6/22, 10/19

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