



## Flow Measurement and Custody Transfer



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## Introduction

When transferring ownership of highly valuable raw and processed assets, such as petroleum and crude oil, you need to be certain that the flow measurements you're getting are extremely exact and up to tight regional authority standards. Numerous businesses, including those in the oil, power, chemical, food, water, and waste treatment sectors, depend on flow monitoring. A flow measurement error of less than 1% in a typical processing facility may easily result in an annual revenue loss of several million dollars. In order to process or operate on a daily basis, these industries need the accurate, precise, and repeatable determination of the amount of fluid—whether gas, liquid, or steam—that passes through a checkpoint. Participants will obtain a solid and practical understanding of custody transfer and flow measurement methods, concepts, and kinds as well as how to evaluate their impact on the strategic and tactical goals of the firm throughout this measurement and custody transfer training session. Participants in this course will be able to comprehend the fundamentals of the tools essential to the organization's financial performance. The course is distinctive in that it exposes students to various types of financial transaction measuring tools, such as production allocation and custody transfer.

## Targeted Groups

- Technicians involved in design or operation of custody transfer systems
- Practicing instrumentation/ process Engineers
- Measurement Superintendents
- Inventory and purchasing control Personnel
- Managers in the industry

## Course Objectives

At the end of this Flow Measurement and Custody Transfer training course, the participants will:

- Possess thorough knowledge of the relevant fluids and gases For the usage of flow measurement instruments, laws are required
- Recognize the key specifications for custody transfer systems.
- Recognize characteristics of flow measurements-related inventory control.
- Recognize flow and level measurement equipment
- Recognize the fundamental fluid and gas laws needed for flow and level measurements.
- Understand the fundamental specifications for flow measurements, such as accuracy and repeatability.
- Know how to use modern flow measurement devices, such as differential pressure DP meters, turbine meters, positive displacement meters, Coriolis flow meters, magnetic flow meters, and ultrasonic flow meters.
- Learn how to evaluate a metering system's suitability for the task, choose the best custody transfer metering systems, and spot potential issues.
- Learn about the concepts and uses of Flow computers, Quality systems, Calibration, Meter Runs, and Proving and Supporting Automation.

## Unit 1: Introduction and Key Concepts for Custody Transfer and

## **Flow Measurement**

- Overview of the custody transfer process and Best Practices
- Introduction, kinds, selection, Velocity, and Density of Flow Measuring Devices Measurements
- Allocation for dividing up earnings and costs
- monetary compensation to regulatory authorities
- governing equations for the laws of fluids and gases
- Accuracy, Precision, Repeatability, and Reliability are terms used in measurement.

## **Unit 2: General Flow Meter Performance and Characteristics**

- Performance, Accuracy, Stability, Repeatability, Sensitivity, Noise, Linearity, and Reliability of the System and the Flow Range
- Applications and Usage, Sizing Temperature and Pressure Measurements, and Flow Modification and Meter Runs
- Applications and Types of Flow Meters

## **Unit 3: General Characteristics and Performance of Flow Meters**

- System Characteristics and Flow Range
- Performance, Accuracy, Stability and Repeatability, Sensitivity, Noise, Linearity, Reliability
- Flow Modification and Meter Runs
- Applications and Usage, Sizing
- Temperature and Pressure Measurements

## **Unit 4: Applications and Types of Flow Meters continued**

- Meters for ultrasonic flow
- Flow meters using magnets
- Uses, Applications, Installation Requirements, and Standards for Coriolis Flow Meters
- Straight Run Requirement

## **Unit 5: Considerations for Custody Transfer and Flow Measurement Systems**

- Transfer Requirements for Custody
- Systems for Measuring Meter Factor: Master Meter, Direct, Indirect, Volume, and Displacement
- Skids for custody transfers
- Computers and Communication in Flow
- Measurements of Pressure and Temperature