

## Lowest Cost of Ownership for Custody Transfer with Foxboro Digital Coriolis Technology



### Foxboro Advantages

- Highly accurate mass, density, and temperature measurement in one meter
- No moving parts to wear, corrode, or erode
- Minimal cost of ownership compared to PD meters
- Unmatched precision of liquid measurement without skips or stalls
- OIML and NCWM certified
- Faster startup, quicker response
- Better systems integration via digital communications

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**FOXBORO**®



## Overview

Billions of dollars in crude oil and hydrocarbon products change ownership every day via custody transfer. However, conventional technologies for the flow measurement of all these transactions possess troubling drawbacks. The PD meters traditionally used suffer mechanical complexity, dependence on moving parts, and difficulties in maintaining accuracy between provings.

The Foxboro CFT50 Coriolis meter provides long-term accuracy and repeatability without the high maintenance costs of traditional PD meters. Its unique digital circuitry furnishes fast response time, ideal even for small-volume provers. The CFT50 has become the measurement solution of choice for fields, pipelines, truckyards, tanker ports, railyards, refineries, and other custody transfer points worldwide.

## The trouble with PD meters

For years, positive displacement (PD) or turbine meters have represented the custody transfer measurement standard. But oil and gas applications bring constant wear, corrosion, and erosion of meter bearings, gears, and other moving parts. So PD meters demand constant recalibration. These mechanical meters suffer from continual “meter factor” drift due to wear. Internals need replacement — sometimes at half the meter’s original price.

Now, finally, there’s a high-value alternative: the CFT50 from Foxboro.



LACT units are designed for automatic transfer of ownership between buyer and seller. Here, a Foxboro CFT50 is used for truck unloading of crude with LACT unit.

The Foxboro CFT50’s unparalleled performance and reliability make it ideal for retrofits as well as new installations.

## Cut your total cost of ownership

Use Foxboro CFT50 digital Coriolis flow transmitters to replace existing PD meters. Coupled with top-quality Foxboro flowtubes, they’re an ideal solution for custody transfer applications in crude oil lines to LPG or LNG tanks.

With the Foxboro Coriolis system, there are no moving parts to wear out, and no internals to replace. Compared to PD meters, you get minimal if any K-factor shift between provings, and a much longer lifetime. You greatly decrease wear; minimize costs for maintenance, repair, and storage; reduce on-hand parts inventory — and achieve a significantly lower ownership cost.



## Gain other advantages

The Foxboro CFT50 also has all the other benefits your custody transfer measurement needs:

**Precision** — Linearity of 0.1 percent over 10:1 turndown; repeatability of 0.05 percent or better

**Digital communications** — Unlike analog PD meters, ties directly into your operations management or CMMS system

**Response time** — Responds to step change in 25 milliseconds, not tens of second; so every unit of material is accounted for, while valves and actuators shut and open with precise accountability; ideal for even small-volume provers

**Certification** — Certified for custody transfer by International Organization of Legal Metrology (OIML); certified by NCWM for custody transfer applications

## Field Proving Performance Against Small-Volume Prover

### Meter Data

Type: Foxboro

Serial No. 5312463

Base K: 10000.00 P/BBL

Model: CFS20-30SEMMM-e

Size: 3"

Pressure: 134.7 PSIG

Product Type: Generalized Crude

Density: 0.8502 GM/CC via API 5 — Glass Hydrometer

API Gravity: 45.00 \*API

Sample Temp: 96.0° F

PROVING DATA					
Volume Dispensed SBBL	Quantity Indicated SBBL	Meter Factor	Quantity Rate SBBL/H	Meter Pulses	Meter Net K P/BBL
0.350853	0.352779	0.994540	647.691	3573.564	10054.899
0.350854	0.352795	0.994496	647.551	3573.721	10055.342
0.350853	0.352708	0.994742	647.608	3572.836	10052.853
0.350853	0.352764	0.994585	647.631	3573.399	10054.442
0.350858	0.352656	0.994843	646.930	3572.483	10051.836
Average					
0.350850	0.352740	0.99461	647.482	3573.201	10053.870

Repeatability: 0.034%

Multi-pass averaging  
not required repeat-  
abilities < .05%



## The proof is in the proving: apply a patented breakthrough in Coriolis technology

Other Coriolis meter manufacturers may make inflated claims that can't be justified by real-world performance. For instance, conventional Coriolis meters cannot process information efficiently, which causes delays. Multi-pass averaging, signal dampening, filtering, and other tuning methods must be used to produce reasonable repeatability. The Foxboro CFT50 is the first "prover-friendly" Coriolis meter requiring no special adjustments or multi-pass averaging. Just prove the Foxboro CFT50 the same way you would a traditional PD or turbine meter.

The Foxboro CFT50 meter from Invensys actually delivers unsurpassed two-phase flow measurement — and more. Its revolutionary technology, developed collaboratively by Invensys and Oxford University in the U.K., incorporates advances such as a digitally synthesized flowtube drive signal. The collaboration has brought patents in several key areas, including signal processing technology, the operational steadiness of validated mass measurement, and more.

**Result:** the perfect low-maintenance, cost-effective solution to measure all your oil and gas custody transfer applications.



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