

Offshore Operator Achieves Long Term Accuracy

with Sentinel LCT8 Solution in Custody Transfer Application

Summary

Panametrics' customer operates an offshore oil production facility with its export metering system located off the coast of Northern Europe.

The custody transfer installation uses two crude oil export meters in series to measure the oil exported from the storage tanks to the oil tanker which is loaded roughly once per month. This configuration enables continuous live comparison between the two meters to verify measurement accuracy and ensure compliance with custody transfer requirements.

Application

Medium:	Crude Oil
Pipe size and thickness:	20" 300# RF sch40 (DN500 9.53 mm)
Pipe material:	Low temperature Carbon steel
Pressure:	725 psi-g (50 bar-g)
Flow rate:	0 – 4100 m ³ /h (619 kbpd)
Temperature:	50°–60°F (10–20°C)
Requested accuracy:	+/- 0.2% of reading

Benefits:

- Detailed diagnostics
- Strong local support
- Low total cost of ownership
- Superior reliability
- Flow profile characterization

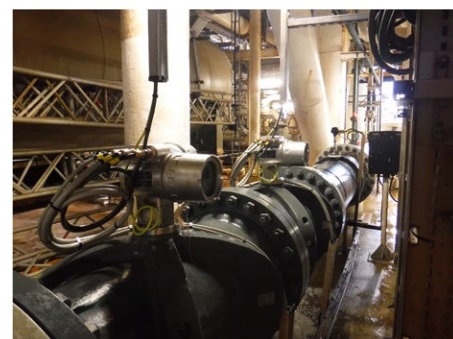


Fig. 1: Redundant check configuration LCT8

Challenges

The customer began experiencing recurring issues with their previous metering solution, particularly during repair and recalibration activities, prompting a search for a more reliable alternative.

Offshore platforms operate under demanding conditions, where limited space, constrained logistics, and tight operational schedules make measurement accuracy and reliability critical. Any unplanned downtime or missing equipment can significantly disrupt production and export operations.

Around six years ago, the customer sent its existing meters for recalibration, but, the results were unsatisfactory, leaving the platform without a functioning measurement system. This created operational risk, particularly given the custody transfer nature of the application.

Faced with these challenges, the customer turned to Panametrics for a solution that could be delivered quickly and supported locally, while meeting the strict technical and regulatory requirements of an offshore installation.

Solution

While other manufacturers required upstream piping conditions that were impossible to achieve on the platform, Panametrics adapted to the customer's existing installation and provided a true one to one replacement.

The solution comprised two ultrasonic Sentinel LCT8 meters in a 20" 300# flange to flange configuration, directly matching the original pipe layout.

Installed in series, the two Sentinel LCT8 meters continuously crosscheck each other ensuring both measurements remain within the acceptable range for the custody transfer application.

The superior performance of the 8 path design enables very short upstream straight run requirements—down to 5D—making the system one of the most compact and reliable metering options available for constrained offshore environments. To support offshore durability, the meters were also supplied with 316 stainless steel enclosures, and the meter bodies were coated to withstand harsh marine conditions.

In addition, the advanced diagnostics available in the Sentinel family provided significant value to the customer. Detailed, per path diagnostic tools enable remote performance assessments without requiring on site intervention – particularly beneficial for this application, where the storage tank can be subject to sediment accumulation. The meter can indicate when the sediment layer has been reached, which allows the customer to take proactive operational decisions.

After more than five years in service, the customer remains highly satisfied with the performance and reliability of the Sentinel LCT8 meters.



Fig. 2: LCT8, 8-path meter