



TECHNOLOGY CERTIFICATE

Certificate no.:
ESNL.C.101469393-2, Rev.4

Initial date:
2021-Oct-1

Valid until:
2026-Oct-1

This is to certify that

CALDON SVM LIQUID METER

as detailed in /1/ has been qualified in accordance with DNV-RP-A203 Technology Qualification /2/. DNV considers the technology fit-for-purpose to meet criteria for DNV class L-AAA fiscal metering systems.

Owner: Sensia, 1000 McClaren Woods Drive, Coraopolis, PA 15108, USA

Name: Caldon LEFM / SVM 289Ci ultrasonic liquid flow meter as further detailed in /1/

Use: Accurate liquid meter designed for custody transfer of high-value liquids, like liquid petroleum, liquified gases

Conditions: The conditions for evaluation and testing as described in /2/

Involvement: DNV has been involved in the testing and evaluation process as required according to /3/, has evaluated and provided laboratory testing evidence and has verified the results that forms the basis for this certificate

High level results The Caldon SVM liquid meter has undergone a technology qualification and on all the aspects tested it qualified for the requirements as set for the most stringent liquid fiscal metering class L-AAA with accuracy class level of 0.25%.

The Caldon SVM meter is a robust meter, that is capable of handling field disturbances efficiently. In most cases the meter is able to cope very well with the field disturbances, in the sense that the meter flow output is hardly affected.

The SVM live uncertainty output were consistent with the deviations determined by testing in 98% of the conditions tested, meaning the deviations were equal to or smaller than expected based on the reported uncertainty values. In the one case where the SVM value was lower than the actual deviation, the deviation and U-SVM values are so high, that the condition is detected rapidly. Overall, it is concluded that the diagnostic ability of this meter, making use of the U-SVM uncertainty evaluation, is very high and provides a validated and useful tool to determine that the meter has potentially large deviations and action should be taken.

Further details of the evaluation can be found in ref. /4/

Reference documents:

/1/ Caldon LEFM liquid and gas flow meter:
<https://www.sensiaglobal.com/measurement/ultrasonic-flow-meter-oil-gas>

/2/ DNV-RP-A203, Recommended Practice on Technology Qualification, September 2019 and DNV, Technology Qualification for flow meters:
<https://www.dnv.com/services/technology-qualification-of-flow-meter-systems-79390>

/3/ Technology Qualification testing and verification plan for ultrasonic SVM, August 29, 2019, DNV ref. GCS.10149393 - 1

/4/ Technology Qualification- Evaluation Results for Caldon SVM liquid gas meter, 26 October 2022, DNV Report no. 182421-FFA 22-1395 Rev. 4.

Dr. Henk Riezebos

Sr. Principal Consultant FLOW,

DNV Energy Systems, Groningen NL

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Business Lead FLOW