Evaluation report

Number **ER11811** revision 0
Project number 2424770

Issued by	NMi Certin B.V.
Relevant document	– "Metrologiewet" (Stb. 2006, 137) – "Regeling nationaal autonoom geregelde meetinstrumenten" (Stc. 2019, 28009)
Producer	Rheonik Messtechnik GmbH Rudolf Diesel Strasse 5 D-85235 Odelzhausen Germany
Part	A **measurement device** (Coriolis sensor) intended to be used as a part of a CG dispenser. Type: RHMxx+RHE2x
Result	The technical design of the measurement device has been evaluated by carrying out examinations and tests in accordance with the relevant documents as mentioned on the following pages. As a result, it has been concluded that the part of the measuring instrument meets the applicable essential requirements of the "Metrologiewet" (Stb. 2006, 137). The examination has resulted in Test Certificate number TC11811 revision 0. The executed evaluations, reference documents and reports used during the examination are described on the following pages.

Issue Date 4 June 2020

M.Ph.D. Schmidt
Team Leader

NMi Certin B.V.
Thijsseweg 11
2629 JA Delft
The Netherlands
T +31 88 636 2332
certin@nmi.nl
www.nmi.nl

INSPECTION
RvA I 122

1 Examinations according to the Directive

The measurement device is examined in accordance with the "Metrologiewet" listed in this Evaluation Report, page 1.

The following harmonized standards, normative documents and / or recommendations are applied:

- OIML R139-1:2018 "Compressed gaseous fuel measuring systems for vehicles"
- WELMEC 7.2, 2015 "Software Guide"
- WELMEC 8.8, 2017 "Guide on the General and Administrative Aspects of the Voluntary System of Modular Evaluation of Measuring instruments"

2 Test Report(s)

The conformity was established by the results of tests and examinations provided in the associated Test Report(s):

Test	Part / Type	Test Report	Remarks
EMC tests: Burst on signal lines Burst on AC mains Surge on signal line Surge on AC lines Surge on DC lines Ripple DC mains. AC voltage dips	RHE27 + RHM04	180972-AU01+E01	Issued by EMV TESTHAUS
EMC tests: Burst on signal lines Burst on AC mains Burst on DC mains Surge on signal line Surge on AC lines Surge on DC lines Ripple DC mains AC voltage dips	RHE28 + RHM04	180973-AU01+E01	Issued by EMV TESTHAUS
EMC tests: ESD Conducted RF Radiated RF AC mains var	RHE27 + RHM04	190364-AU01+E04	Issued by EMV TESTHAUS
EMC tests: ESD Conducted RF Radiated RF AC mains var	RHE28 + RHM04	190364-AU01+E05	Issued by EMV TESTHAUS
Climatic tests: Dry heat Cold Damped Heat	RHE27/RHE28/RHM 04	A 2019198 A 2020031	Issued by RS-simulatoren

Test	Part / Type	Test Report	Remarks
Vibration tests: Random vibrations Class 1 and Class 2	RHE21/RHE27/RHE28/RHM04	A 2020064	Issued by RS-simulatoren

3 Additional Evaluations

This Evaluation Report is supplemented by the following additional evaluations:

Test	Part / Type	Test Report / Document	Remarks
Software evaluation according to the requirements of WELMEC 7.2, 2015	RHE2X	EU-type examination report: DE-19-MI002-PTB003	
Hardware evaluation according to MI-002 and OIML R137	RHMx + RHE2X	EU-type examination report: DE-19-MI002-PTB003 issued by PTB on 21-08-2019	See remarks below
Accuracy tests on water	RHM 04L + RHE 21 RHM 04L + RHE 27 RHM 04L + RHE 28	Cal. Cert. 200417 Cal. Cert. 190715 Cal. Cert. 190708 Cal. Cert. 190702 Cal. Cert. 190701	
Accuracy tests on Natural Gas	RHM15 + RHE27	600592 – pigsar-OME-190215 issued by pigsar on 14-03-2019	
Accuracy tests on nitrogen as replacing substance for hydrogen	RHM04 + RHE 25	2018-454 issued by TUV NEL on 31-06-2018	
Dispenser testing on hydrogen	RHM04 + RHE27	Metering- preliminary test campaign- test results	

Remarks:

- The measurement device has been tested on Natural gas by PTB and tested on Water at Rheonik water calibration facility.
- Furthermore, the producer has verified the performance of the measurement device in several hydrogen dispenser and preformed calibration of natural gas and nitrogen as substance for hydrogen. Due to the absence of testing installation with hydrogen as a product, performance testing is not possible.
- Based on the test data submitted NMi grants compliance in accordance with “Metrologiewet” as long as the conditions for conformity assessment are taken into account regarding a calibration has to be performed with the complete dispenser including measuring device on the product it is going to measure.

4 Cross reference

Requirements of the "Metrologiewet", which are not covered by the applied harmonized standards and / or normative documents, as indicated in the below mentioned table, are covered by the following:

Test	Test Report	Remarks
Other influence quantities to be considered, where appropriate, are: - mains frequency variation - power frequency magnetic fields	-	The stated influence quantities are judged to have no significant influence on the accuracy of measurement device. Therefore, no additional tests have been performed.
Software identification shall be easily provided by the measuring instrument.	-	See chapters 1.2 of the description of Test Certificate TC11811.

5 Revision History

Project no.	Rev.	Date	Test report / Document	Description / Remarks
2424770	0	4 June 2020	180972-AU01+E01 180973-AU01+E01 190364-AU01+E04 190364-AU01+E05 A 2019198 A 2020031 A 2020064 DE-19-MI002-PTB003 Cal. Cert. 200417 Cal. Cert. 190715 Cal. Cert. 190708 Cal. Cert. 190702 Cal. Cert. 190701 600592 – pigsar-OME-190215 issued by pigsar on 14-03-2019 2018-454 issued by TUV NEL on 31-06-2018 Metering- preliminary test campaign- test results	First Issue