OIML Certificate

OIML Member State
The Netherlands

Number R 117/2007-A-NL1-22.02 revision 0
Project number 2638810

Issuing authority Person responsible:	NMi Certin B.V. M.Ph.D. Schmidt
Applicant and Manufacturer	Silea Liquid Transfer S.r.l. Via 1° Maggio, 31 40064 Ozzano dell'Emilia (BO) Italy
Identification of the certified type	An interruptible **measuring system** for liquids other than water. Type: (Un)Loading, transferring, measuring system for depot, oil terminal, airport.
Characteristics	See page 2 and further

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 117-1 (2007) "Dynamic measuring systems for liquids other than water"

Accuracy class 0,3 / 0,5 / 1,0

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above.
This Certificate does not bestow any form of legal international approval.

This certificate and supporting reports comply with the requirements of OIML-CS-PD-07 clause 6.2.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority **NMi Certin B.V., OIML Issuing Authority NL1**
7 April 2022

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The conformity of the measuring system was established by the results of tests and examinations provided in the associated report(s):

- No. NMi-2638810-01 dated 7 April 2022 that includes 50 pages.

The conformity of the applicable parts was established by the results of tests and examinations provided in the associated report(s):

- For the mechanical measurement transducer, brand Silea Liquid Transfer S.r.l. with type DM, BMxxx:
  - No. NMi-19017928-01 dated 8 August 2018 that include 66 pages;
  - No. NMi-2273797-01 dated 5 April 2019 that include 27 pages.

- For the measurement sensor, brand Emerson Process Management Flow B.V. with type CMFXXXY, DS600:
  - No. CVN-201269 dated 10 July 2002 that include 80 pages;
  - No. CVN-207999-01 dated 1 March 2003 that include 9 pages;
  - No. CVN-410178-1 dated 21 May 2005 that include 6 pages;
  - No. CVN-410178-2 dated 21 May 2005 that include 6 pages;
  - No. CVN-410178-3 dated 21 May 2005 that include 8 pages;
  - No. CVN-410178-4 dated 21 May 2005 that include 6 pages;
  - No. C-SP/603876 dated 19 December 2006 that include 23 pages;
  - No. CPC-607580-1 dated 26 April 2007 that include 93 pages;
  - No. CPC-802620-01 dated 17 December 2009 that include 41 pages;
  - No. NMi-10200543-2 dated 5 April 2011 that include 12 pages;
  - No. NMi-11200345-2 dated 20 November 2011 that include 10 pages;
  - No. NMi-1901179-01 dated 19 December 2017 that include 24 pages.

- For the core processor, brand Emerson Process Management Flow B.V. with type 700, 800, 820, 1700, 2500, 2700, 3500 and 3700 (“MVD series”):
  - No. CPC-307228-1 dated 21 February 2005 that include 35 pages;
  - No. CPC-607580-1 dated 26 April 2007 that include 32 pages;
  - No. CPC-610406-2 dated 29 January 2008 that include 142 pages;
  - No. CPC-710466-1 dated 19 November 2008 that include 64 pages;
  - No. NMi-11200214-01 dated 17 May 2011 that include 13 pages;
  - No. NMi-11200214-02 dated 17 May 2011 that include 16 pages;
  - No. NMi-11200345-2 dated 20 October 2011 that include 10 pages;
  - No. NMi-11200708-2 dated 13 February 2012 that include 15 pages;
  - No. NMi-SO12200192-1 dated 23 May 2012 that include 15 pages;
  - No. NMi-SO12200736-1 dated 10 January 2013 that include 16 pages;
  - No. NMi-SO13200862-1 dated 4 June 2013 that include 15 pages;
  - No. NMi-SO13203381-01 dated 12 September 2013 that include 15 pages;
  - No. NMi-SO13204037-01 dated 4 November 2013 that include 16 pages;
  - No. NMi-SO14200881-01 dated 7 March 2014 that include 15 pages;
  - No. NMi-1901208-01 dated 5 July 2018 that include 114 pages;
  - No. NMi-1901208-02 dated 5 July 2018 that include 17 pages;
  - No. NMi-1902436-01 dated 31 July 2018 that include 27 pages.

- For the flow transmitter, brand Emerson Process Management Flow B.V. with type 5700*1(2,3 or 5)A***ZZ*:

- No. NMi-1902436-01 dated 31 July 2018 that include 27 pages;
- No. NMi-2571596-01 dated 30 September 2021 that include 38 pages;
- No. NMi-2571596-01 dated 30 September 2021 that include 32 pages;
- No. NMi-14200115-01 dated 4 December 2015 that include 68 pages;
- No. NMi-14200115-02 dated 4 December 2015 that include 52 pages;
- No. NMi-14200115-03 dated 4 December 2015 that include 10 pages;
- No. NMi-14200115-04 dated 15 January 2016 that include 15 pages;
- No. NMi-14200115-05 dated 15 January 2016 that include 15 pages;
- No. NMi-14200115-06 dated 22 April 2016 that include 21 pages;
- No. NMi-15200770-01 dated 4 February 2016 that include 9 pages.

- For the electronic calculating and indicating device, brand Toptech Systems, Inc with type Multiload II:
  - No. CPC/705355 dated 1 November 2007 that include 69 pages;
  - No. NMi-11200253 dated 31 December 2011 that include 112 pages;
  - No. NMi-12200429 dated 26 February 2013 that include 36 pages;
  - No. NMi-15200296-01 dated 22 November 2015 that include 61 pages;
  - No. NMi-15200296-02 dated 22 November 2015 that include 49 pages;
  - No. NMi-15200296-03 dated 22 November 2015 that include 13 pages.

- For the electronic calculating and indicating device, brand Liquid Controls LLC with type MASTERLOAD.iQ and MASTERLOADx.iQ:
  - No. NMi-2408986-01 dated 18 December 2019 that include 78 pages;
  - No. NMi-2408986-02 dated 18 February 2020 that include 28 pages,

- For the gas extractor, brand S.A.M.P.I. s.p.a., Italy with type EGS_X:
  - No. CPC-9200487-01 dated 22 November 2010 that include 14 pages.

Characteristics of the measuring instrument
In Table 1 the general characteristics of the measuring instrument are presented.
The construction of the measuring instrument is recorded in the Documentation folder no. T12216-1.

Table 1 General characteristics

Accuracy class	0,3 / 0,5 /1,0 *
Intended for the measurement of	Liquid other than water with viscosity in the range 0,3 - 1242 mPa·s (excluding food liquids) *

*) The actual characteristics are depending on the configuration and applicable parts chosen for the complete measuring system.

Each measuring instrument consists at least of:
- One pump
- One measurement transducer (meter);
- One calculating/indicating device (calculator);
- Optional one gas elimination device (gas extractor).

Configurations characteristics:
- If possible, for air or gas to enter the system, for example when the supply tank becomes empty, then the gas elimination device or an empty detection device should be installed

upstream and with sufficient distance of the meter to prevent air or gas passing through the meter.
- A non-return valve can be fitted upstream of the measurement sensor to prevent the reverse flow to be measured with the measuring system.
- A printer is connected to the flow computer and is used for printing the reports (deliveries), events and alarms. The printer can be of any brand and type under the condition that it is equipped with a paper out detection and that the communication with the printer is safeguarded.

The characteristics of the mentioned parts of the measuring system are presented at table 3 and higher.

Parts of the measuring instrument

The conformity of the following parts was established by the results of tests and examinations provided in the associated report(s):

Part:	Measurement transducer
Producer:	Silea Liquid Transfer S.r.l.
Type:	DM, BMxxx
Documentation folder:	TC12118-1

Table 2 General characteristics of the measurement transducer type DM, BMxx

Maximum pressure	1034 kPa
Environmental classes	M3
Ambient temperature range	-25 °C / +55 °C
Product temperature range	-5 °C / +35 °C
Intended for the measurement of	Hydrocarbon based oils and fuels with maximum viscosity of 20 mPa·s at 20 °C
Impulse encoder or pulser	Eltomatic A/S Impulse Encoder, type 01-09

Table 3 specific characteristics of the meter type BMxx

Type	Accuracy Class	Flange size [inch]	Cyclic Volume [L]	Qmin [L/min]	Qmax [L/min]	MMQ [L]
BM250 (S)	0,3	2½" (DN 65)	2,27	115	1140	100
BM950 (S)	0,3	3" (DN80)	2,27	115	1500	200
BM450 (D)	0,3	3" (DN80)	4,54	200	2050	200
BM550 (D)	0,3	4" (DN100)	4,54	220	2280	500
BM350 (D)	0,3	4" (DN100)	4,54	125	2800	500
BM650 (T)	0,3	4" (DN100)	6,81	300	3000	500
BM850 (T)	0,3	6" (DN150)	6,81	200	4250	500

Table 4 specific characteristics of the meter type DM

Type	Accuracy Class	Flange size [inch]	Cyclic Volume [L]	Qmin [L/min]	Qmax [L/min]	MMQ [L]
DM (S)	0,3	4" (DN100)	5,75	200	2500	200

Part: Measurement sensor
Producer: Emerson Process Management Flow B.V.
Type: DMFxxxy, DS600
Documentation folder: TC7056-13

Table 5 General characteristics of the measurement sensor type CMFxxxy, DS600

Maximum pressure	413 bar
Accuracy class	0,3 and 0,5
Environmental classes	M3 / E3
Ambient temperature range	-40 °C / +55 °C
Product temperature range	-40 °C / +250 °C
Intended for the measurement of	Oil and oil product up to 1242 mPa·s

Table 6 specific characteristics of the measurement sensor type CMFxxxy, DS600

Type		Accuracy Class	Qmin [kg/min]	Qmax [kg/min]	MMQ [kg]	Maximum pressure [bar(g)]
CMF010 y)		0,3	0,033 (1) 0,067 (2)	1,8	0,05	125 (3) 225 (4) 413 (2)
		0,5	0,017 (1) 0,033 (2)			
CMF025 y)		0,3	0,46	36	0,5	103 (3) 190 (4)
		0,5	0,23			
CMF050 y)		0,3	2,72	110	5	103 (3) 185 (4)
		0,5	1,36			
CMF100 y)		0,3	11,4	450	10	100 (3) 170 (4)
		0,5	5,7			
CMF200 y)		0,3	36	1450	20	108 (3) 190 (4)
		0,5	18			
CMF300 y)		0,3	114	4500	200	119 (3) 185 (4)
		0,5	57			
CMF350 y)		0,3	226 (1; 2) 453 (6)	4920	500	102 (3) 115 (2; 4)
		0,5	113 (1; 2) 226 (6)			
CMF400 y)	(A)	0,3	680	6800	500	103 (3) 197 (4) 205 (2)
		0,5				
	(B)	0,3	680			
		0,5	340			
	(C)	0,3	1700			
		0,5	850			
DS600 S		0,3	1140	10800	1000	43
		0,5	570			
CMFHC2 y)		0,3	1136	12600	1000	102 (3) 206 (5)
		0,5	568			
CMFHC3 y)		0,3	2268	22000		
		0,5	1134			
CMFHC4 y)		0,3	3400	30000		
		0,5	1700			

Note:
The CMF400 got a mechanical improvement, therefore the following distinction applies:

- **(A)**: Serial number up to 411000;
- **(B)**: Serial number from 411000 up to 14200000
- **(C)**: Serial number higher than 14200000

y) indicates the type of material the meter is build of:

- **(1)**: y) = H, L or M;
- **(2)**: y) = P (high pressure version)
- **(3)**: y) = A, L or M;
- **(4)**: y) = B, C, E or H
- **(5)**: y) = Y;
- **(6)**: y) = A, B, C or E

Part: Core processor
Producer: Emerson Process Management Flow B.V.
Type: 700, 800, 820, 1700, 2500, 2700, 3500 and 3700 (“MVD series”)
Documentation folder: TC7057-17

Table 7 General characteristics of the core processor type 700, 800, 820, 1700, 2500, 2700, 3500 and 3700 (“MVD series”)

Environmental classes	M3 / E3 for 700, 800, 820, 1700, 2700, 3500, 3700 and dual pulse converter M2 / E2 for 2500
Ambient temperature range	-40 °C / +55 °C

The validated software versions and checksums are:

700 Core Processor					
Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
2.0	51FF	2.7	F666*)	3.2	18D0
2.1	2B3F	2.8	1DEA*)	3.3	B0D1
2.2	9005	3.0	D00D*)	3.40	73A9
2.3	D75B	3.0–ETO17153	97D6*)	3.42	F00C
2.4	474F	3.11–ETO19413**)	14AD	3.50	11AA
2.5	14AD	3.12	1F1B*)	3.52	3C4A
2.6	D732*)	3.13–ETO18951	8BF8*)		

*) Indicated as 14AD, corrected from v3.2
**) Linearization feature

800 Enhanced Core Processor					
Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
3.11	891378AB	3.9	58CB3E0C	4.51–ETO32353	BC1660E8
3.21	9893B999	3.91–ETO21156	65F98DD7	4.51–ETO33244	D7B81135
3.30	A73D25DA	3.94	47EB3E10	4.60	DDB76E3C
3.42	7FA82CE8	3.96	756C1BFD	4.70	AEB92E3F
3.50	D9343F05	4.00	C582F843	4.80	F1583A44
3.52	132CCB63	4.02	8D61C368	4.9	6083BF9B
3.6	A9CA4E81	4.14	40860C63	5.08	4D368E71
3.61–ETO17170	9AA358FF	4.20	2983A9BE	5.1	82C541D9
3.7	BE73CD62	4.21–ETO21931*)	D6349259	5.2	BD69FDD6
3.71–ETO18982	580D32B6	4.40	B280233F	5.22	F4A8D922
3.8	8CA8E7D1	4.42	D7BA0841	5.23–ETO45214	B1D70450
3.81–ETO20775	7931CE3D	4.50	6B48C624	5.30	65828884

Notes:

- For the 800ECP v3.80 or higher: by writing ETO number 13511 in Modbus register 5005, the linearization feature is enabled.
- 800 ECP versions lower than 5.xx are not compatible with hardware version v4 of the Enhanced Core Processor. There are three hardware versions of the 800:
  - 800 v1; identified with part number 20006069.
  - 800 v2; identified with part number 20016889.
    This is the same as the v1 but equipped with RoHS components (Restriction of Hazardous Substances).
  - 800 v3; identified with part number MMI-20020807, rev AD.
  - 800 v4; identifies with part number MMI-20020807, rev. AE.
    This version uses the SSM2604 CODEC from a different supplier, resulting in:
    - Updated board electronics
    - Updated software version (version 5.00 and higher), which is backwards compatible with the previous hardware versions (v1, v2 and v3).
  - 800 v5; identifies with part number MMI-20088230, rev. AA.
    - This version uses the same CODEC as the v4 hardware, but with added compensation circuit and the removal of unused parts of the boards to simplify the lay-out.
  - 800 v6; identifies with part number MMI-20093828, rev. AA.
    - This version uses the ADAU1361 CODEC instead of the SSM2604 CODEC. The ADAU1361 is a more modern version with better future availability. This version needs software version 5.00 and higher.

  See the documentation folder, section 800 Core Processor

*) Density Based Correction coefficients removed. To be used in gas application measuring Hydrogen or Helium.

820 Remote Dual Core Processor					
Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
1.00	52FB 1CF0	1.30	AC56C460	1.50	F42A4B2C
1.10	787951AA	1.40	8B64EF94		
1.20	3B7249F6	1.41	073C45F2		

Notes:
- Fuel Consumption feature from v1.10 onwards is not approved.
- 820 versions lower than 1.50 are not compatible with hardware version v2 of the Remote Dual Core Processor. There are two hardware versions of the 820:
  - 820 v1; identified with part number MMI-200229698 Rev. AB
  - 820 v2; identified with part number MMI-20029698 Rev. AC.
    This version uses the SSM2604 CODEC from a different supplier, resulting in:
    - Updated board electronics
    - Updated software version (version 1.50 and higher), which is backwards compatible with the previous hardware version (v1).

  See the documentation folder, section 820 Dual Core-Processor

Software versions with no checksum		
Part	**Version**	**Remark**
1700 2700	3.2, 3.3, 3.4, 3.4.1, 3.5.3, 3.6, 3.7, 4.1, 4.2	
2500	4.0, 4.1, 4.2	

1700 / 2700 / 2500					
Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
5.0/1.0	7A7F0B39	6.4/1.3	B77B25C9	7.1/1.3	88FB1B5C
5.1/1.0	95F0BC47	6.5/1.3	88FB1B5C	7.2/1.3	9ECE81F1
5.12/1.0	A14FBFB9	6.6/1.3	9ECE81F1	7.3/1.3	4A5365D4
5.2/1.0	746CBE79	6.7/1.3	4A5365D4	8.0/1.3	1E1467F9
6.0/1.1	BB615B55	6.8/1.3	1E1467F9	8.02/1.3	201465F9
6.1/1.2	13176BE6	6.82/1.3	201465F9		
6.11–ETO19266	9B13F21A	7.0/1.3	B77B25C9		

3500 / 3700					
Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
7.0/1.1	A1C34F1C	8.1/1.3	4279A001	8.41–ETO26097	31D36D05
7.1/1.1	D5783FCF	8.14/1.3	62F125F2	8.43–ETO31478	E35DF3C0
7.2/1.1	20609FD3	8.2/1.4	368139C5	8.50/1.5	1C146AF7
8.0/1.2	158A12BD	8.21–ETO23686	D507F464	8.51-ETO22243	B18A0CB3
8.02–ETO18947	1CC007C4	8.3/1.4	8F65A9E9		
8.03–ETO19299	2D6104C2	8.4/1.4	227B10D2		

See documentation folder page 7057/35-01 with an overview of the ETO Software for the different transmitters.

Part: Flow transmitter

Producer: Emerson Process Management Flow B.V.
Type: 5700*1(2,3 or 5)A***ZZ*
Documentation folder: TC8519-4

Table 8 General characteristics of the flow transmitter type 5700*1(2,3 or 5)A*ZZ***

Environmental classes	M3 / E3 / H3
Accuracy class	0,3 / 0,5 / 1,0 / 1,5 / 2,5
Ambient temperature range	-25 °C / +55 °C -40 °C / +55 °C in case the measurement results can be read and / or recorded with an approved instrument

The validated software versions and checksums are:

Version	Checksum	Version	Checksum	Version	Checksum
Transmitter Software (Weights & Measures)[1]					
1.20 (1.0)	2DF0D8E9	2.10 (2.0)	23DD3385	4.0 (3.0)	0E4997D5
1.30 (1.1)	ADE631BB	3.0 (3.0)	06108400	4.07 (4.0)	44477758
1.85 (2.0) ETO28130	0EA71B41	3.1 (3.0)	2DE64BB2	4.1 (4.0)	AFE0673B
2.00 (2.0)	2F52132D	3.2 (3.0)	8CB1FE4B		
Internal Core Software					
4.02	8D61C368	4.50	6B48C624	5.08	4D368E71
4.14	40860C63	4.60	DDB76E3C	5.10	82C541D9
4.20	2983A9BE	4.70	AEB92E3F	5.20	BD69FDD6
4.40	B280233F	4.80	F1583A44	5.22	F4A8D922
4.42	D7BA0841	4.90	6083BF9B		
PIC Firmware					
8.0	0000DE9C				
LCD PIC Firmware *)					
3.0	000081D5 (1.20)	3.0	00007442 (1.30 and later)		

Notes:

- Internal core software versions lower than 5.xx are not compatible with the new Core Processor Board, reference EB-20084741, documentation numbers 8515/14-01 and 8519/14-02.
- Internal core software versions higher than 5.xx are backwards compatible with the old Core Processor Board, reference EB-20025291, documentation numbers 8515/0-01 and 8519/0-02.

***)** Between brackets the transmitter software is mentioned which belongs to the stated checksum.

[1] The transmitter software and the Weights & Measures (W&M) software form a matched set. Please note that the W&M software does not have a checksum and means W&M is licensed.

Part: Calculating/indicating device

Producer: Toptech Systems
Type: MultiLoad II
Documentation folder: TC7311-7

Table 9 General characteristics of the calculating/indicating device type MultiLoad II

Environmental classes	M3 / E2
Accuracy class	0,5
Ambient temperature range	-25 °C / +55 °C

The validated software versions and checksums are:
The validated older software versions, without checksums

Version		
3.27.xx	3.29.xx	4.30.xx
3.28.xx	3.30.xx	
3.31.xx; with xx up to and including 23		
4.31.xx; with xx up to and including 23		

The validated software versions with checksums for type EXL and type DIV-2.

Version	**Checksum**	**Version**	**Checksum**	**Version**	**Checksum**
3.31.24	0x4FA96A11	3.33.00	0x2C6A6FB2	4.31.39	0x6FFCE72C
3.31.25	0x3BBF0F06	3.33.01	0x21C483EF	4.31.40	0xFE7DA941
3.31.26	0x83360142	4.31.24	0x591B1296	4.33.00	0x25FD8183
3.31.27	0xC7834896	4.31.25	0x3D522C10	4.33.01	0xF9E743BE
3.31.28	0x89AFCABE	4.31.26	0x8C9B73E9	4.33.02	0x9D790753
3.31.29	0x644EB670	4.31.27	0x8F20AAC1	4.33.03	0xBBC43A94
3.31.30	0x12CBDE44	4.31.28	0xF916CC35	4.33.04	0xEBBD3475
3.31.31	01x1D0D4A13	4.31.29	0x4CEFDB91	4.33.05	0xF1084660
3.31.32	0x35CE4539	4.31.30	0xA360CDA4	4.33.06	0x6314910A
3.31.33	0xE28D05B7	4.31.31	0x9487C1C4	4.33.07	0xE97CC642
3.31.34	0xA5C82716	4.31.32	0x28AAA045	4.33.08	0xA0DFBE4B
3.31.35	0xB5466D38	4.31.33	0xE383708A	4.33.09	0x8ECBD9C3
3.31.36	0x471D5B7E	4.31.34	0x6A24A4C6	4.33.10	0xEEFEDC49
3.31.37	0xB5CC76E3	4.31.35	0x1DABB012	4.33.12	0x8D9AB1D4
3.31.38	0xFE146E6D	4.31.36	0xACE02593		
3.31.39	0xEEC09D68	4.31.37	0x55E368BF		
3.31.40	0xF741F6DA	4.31.38	0x8B758AD0		

The validated software versions with checksums for type SMP.

Version	Checksum	Version	Checksum	Version	Checksum
3.31.24	0x73C6793D	3.33.00	0xD70085F1	4.31.39	0x248219DF
3.31.25	0xF15CFAD4	3.33.01	0x6146C263	4.31.40	0xB9A02360
3.31.26	0x2C8A5A8A	4.31.24	0xEDB77B79	4.33.00	0x2931A4E1
3.31.27	0x7F1833EA	4.31.25	0xDA7B19FA	4.33.01	0x61F07194
3.31.28	0xE7764265	4.31.26	0x4126F5FB	4.33.02	0x87298080
3.31.29	0x7EAC6292	4.31.27	0x0D3AB86A	4.33.03	0xC040D5F6
3.31.30	0x8A92F6D9	4.31.28	0x9196C792	4.33.04	0x07D60D5A
3.31.31	0xE48CB139	4.31.29	0xEE3F718F	4.33.05	0x460BCE3E
3.31.32	0xDFA6AD48	4.31.30	0x37EAD291	4.33.06	0x2A8BADF2
3.31.33	0xB3DF91F0	4.31.31	0xAF3BCF6A	4.33.07	0x9915B485
3.31.34	0x209A25BE	4.31.32	0x720CD2CF	4.33.08	0xA5B20CE9
3.31.35	0xC2CE0441	4.31.33	0xF5A85F72	4.33.09	0x64324865
3.31.36	0x54D28D7D	4.31.34	0xC5340B69	4.33.10	0x7670C4E4
3.31.37	0x3CD47DFC	4.31.35	0x7D5E3CCA	4.33.12	0xD910938F
3.31.38	0x1BE81F66	4.31.36	0x8A253972		
3.31.39	0x30F50FE7	4.31.37	0xC66BA5EC		
3.31.40	0x953D6D92	4.31.38	0x81C583D6		

Remark: The 0x added to the beginning indicates that the number is a hexadecimal number.

Part: Calculating/indicating device
Producer: Liquid Controls LLC
Type: MASTERLOAD.iQ and MASTERLOADx.iQ
Documentation folder: TC11730-1

Table 10 General characteristics of the calculating/indicating device type MASTERLOAD.iQ and MASTERLOADx.iQ

Environmental classes	M3 / E2 + E3
Accuracy class	0,5
Ambient temperature range	-40 °C / +70 °C

The validated software versions and checksums are:

Description	versions	CRC Checksum
GNU/Linux	4.9.88-007	060afc2bc6f029379c15ece991aa6eb8
LCR.iQ software part and version	SR1000 v 1.07	b22c8503bfe9924042aa7002cf5777b4
	SR1000 v 1.08.01	1d0f9a85ac081149c8448ed9e09ac98e
	SR1000 v 1.09.01	c0ffacce4c4cec16018521104a8584f4
	SR1000 v 1.09.03	d270eb3bf9077ff78b28280b30e1bdcb
	SR1000 v 1.11.00	458753561247b99027a3a3dca9fef4b9
I/O board software part and version	SR1010 v 1.06	0d8d6df0
	SR1010 v 1.07.01	1D993269
	SR1010 v 1.08.01	ef7c3c68
	SR1010 v 1.08.03	01f6bf3d
	SR1010 v 1.11.00	98cbd2c7
SENSEiQ board software part and version	SR1011 v 1.00.01	9E2451A0
	SR1011 v 1.01.03	ba4986fa
	SR1011 v 1.11.00	686dfc37

OIML Certificate

Part:	Gas elimination device
Producer:	S.A.M.P.I. S.p.A. Liquid controls LLC, Liquid controls Europe.
Type:	ESG_1 and ESG_2
Documentation folder:	TC7329-5

Table 11 General characteristics of the gas elimination device type EGS_1 and EGS_2

Minimum pressure	0,1 bar(g)
Maximum pressure	- 10; 25 with F and FD filters. - 20; 51 with FMP filters. Equal to the maximum P(e) max. of the measuring system in which the Special Gas Extractor is used and not above 51 bar(g).
Environmental classes	M3 / E3
Ambient temperature range	-25 °C / +55 °C
Product temperature range	-10 °C / +50 °C
Intended for the measurement of	Hydrocarbon based oils and fuels with maximum viscosity of 20 mPa·s at 20 °C

Certificate history:
This revision replaces the previous version.

Revision	Date	Description of the modification
Initial	7 April 2022	-