O I M L   C e r t i f i c a t e

Issuing authority	NMi Certin B.V.
Person responsible:	M.Ph.D. Schmidt

Applicant and Manufacturer	Emerson Process Management Flow B.V. Neonstraat 1 6718 WX Ede The Netherlands

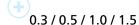|	
Identification of the certified type	A **measurement transducer** Type: Fxxx[1]

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 / 1.5

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.

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[1]   With xxx denoting the size of the measurement sensor.

Issuing Authority	**NMi Certin B.V., OIML Issuing Authority NL1** 30 September 2021

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

Report number	Issue date	Number of pages
Fxxx measurement sensor		
CPC-607073-02	25 November 2009	20
CPC-700915-01	25 November 2009	19
CPC-9200685-1	12 May 2010	10
CPC-11200060-01	15 July 2011	12
NMi-11200823-01	24 January 2012	7
NMi-11200823-02	24 January 2012	6
NMi-10201042-1	23 July 2013	6
NMi-15200566-01	13 October 2015	9
NMi-1900496-01	16 March 1017	14
NMi-2248752-01	19 December 2019	66
MVD series electronics		
CVN-201269	10 July 2002	80
CPC-307228-1	21 February 2005	35
CPC-610406-2	29 January 2008	142
CPC-710466-1	19 November 2008	64
NMi-11200214-01	17 May 2011	13
NMi-11200345-2	20 October 2011	10
NMi-1901208-1	5 July 2018	114
5700 electronics		
NMi-14200115-01	4 December 2015	68
NMi-14200115-02	4 December 2015	52
NMi-14200115-06	22 April 2016	21
NMi-15200770-01	4 February 2016	9
NMi-2571596-01	30 September 2021	38

Characteristics of the measurement transducer
In Tables 1 to 6, the general characteristics of the measuring instrument are presented.
The construction of the measurement transducer is recorded in documentation folders TC7050-6 for the measurement sensor and TC7057-16 for the MVD series electronics or in TC8519-3 for the 5700 electronics.

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Table 1 General characteristics applicable to all measurement sensors

- Density range: $450 \ldots 1100$ kg/m^3
- Maximum viscosity: 435 mPa·s @ 20 °C
- Accuracy class: 0.3; 0.5; 1.0 and 1.5
- Environmental classes: M3 / E2 / H3
- Ambient temperature range: $-40 \ldots +55$ °C
- Intended for the measurement of: Oil and oil products, chemicals, potable liquids, liquefied gases under pressure measured at temperatures above -10 °C and cryogenic liquids.

Table 2 Specific characteristics of the measurement sensors

Sensor type	F025y	F050y	F100y	F200y
Maximum flow rate [kg/min]	23	68	272[A, B, H, S] 183[J, P]	725
Minimum flow rate Class 0,3 [kg/min]	0,9	9	36	116
Minimum flow rate Class 0,5 [kg/min]	0,45	4,5	18	58
Minimum flow rate Class 1,0 [kg/min]	0,225	2,25	36 9	58
Minimum Measured Quantity [kg]	2	5	10	20
Maximum pressure [bar(g)]	100[A, S] 148[B, H] 160[P]	100[A, S] 148[B, H] 345[P]	100[A, S] 185[B, H] 357[J] 430[P]	100[A, S] 148[B, H]

Sensor type	F300y	F300y Enhanced version
Maximum flow rate [kg/min]	2268	2268
Minimum flow rate Class 0,3 [kg/min]	362	150
Minimum flow rate Class 0,5 [kg/min]	181	90
Minimum flow rate Class 1,0 [kg/min]	181	90
Minimum Measured Quantity [kg]	200	50
Maximum pressure [bar(g)]	100[A, S] 148[B, H]	100[S]

Notes:
- y is a letter which indicates the type of material the meter is built of.
  Where there are different possibilities for a characteristic, the actual letter is indicated in superscript.

Further characteristics of the measurement sensor:

Accuracy Class	0.3	0.5	1.0	1.5
Temperature range liquid for mass measurement	-10 °C … +50 °C			-200 °C … +50 °C
Temperature range liquid for density and volume measurement	-10 °C … +50 °C			NA

Note: For accuracy class 1.5, the F-sensors are approved for mass measurement only.

Table 3 General characteristics of the MVD series electronics

Environmental classes	M3 / E3 / H3 (700, 800, 820, 1700, 2700, 3500, 3700) M2 / E2 / H3 (2500)
Ambient temperature range	-40…+55 °C; condensing humidity
Power supply voltage	24 VDC 18… 30 VDC 18…100 VDC / 85…265 VAC, 50…60 Hz

Table 4 Software versions of the MVD series electronics

Version	Checksum	Version	Checksum	Version	Checksum
700 Core Processor					
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		
800 Enhanced Core Processor					
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

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Version	Checksum	Version	Checksum	Version	Checksum
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	5.10	82C541D9
3.7	BE73CD62	4.21– ETO21931	D6349259	5.20	BD69FDD6
3.71 – ETO18982	580D32B6	4.40	B280233F	5.22	F4A8D922
3.8	8CA8E7D1	4.42	D7BA0841		
3.81 – ETO20775	7931CE3D	4.50	6B48C624		
800 Remote Dual Core Processor					
1.00	52FB 1CF0	1.20	3B7249F6	1.40	8B64EF94
1.10	787951AA	1.30	AC56C460		
1700 / 2700 / 2500					
3.2, 3.3, 3.4, 3.4.1, 3.5.3[*]		3.6, 3.7, 4.1, 4.2[*]		4.0, 4.1, 4.2[**]	
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					
7.0/1.1	A1C34F1C	8.03 – ETO19299	2D6104C2	8.3/1.4	8F65A9E9
7.1/1.1	D5783FCF	8.1/1.3	4279A001	8.4/1.4	227B10D2
7.2/1.1	20609FD3	8.14/1.3	62F125F2	8.41 – ETO26097	31D36D05
8.0/1.2	158A12BD	8.2/1.4	368139C5	8.43 – ETO31478	E35DF3C0
8.02 – ETO18947	1CC007C4	8.21 – ETO23686	D507F464	8.50/1.5	1C146AF7

Notes:

*) Software versions for the 1700 / 2700 which do not have a checksum.
**) Software versions for the 2500 which do not have a checksum.

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Table 5 General characteristics of the 5700 electronics

Environmental classes	M3 / E3 / H3
Ambient temperature range	-25…+55 °C(if the display is the primary indication) -40…+55 °C(if an approved external display is used as primary indication)
Power supply voltage	21… 90 VDC 100…240 VAC, 50…60 Hz

Table 6 Software versions of the 5700 electronics

Version	Checksum	Version	Checksum	Version	Checksum
Transmitter Software (Weights & Measures)[*]					
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 Processor					
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:

[*]   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.

[**]   The number between brackets, is the transmitter software which belongs to the stated checksum.