

Issuing authority NMI Certin B.V.  
Person responsible: M. Boudewijns

Applicant and  
Manufacturer Micro Motion, Inc.  
7070 Winchester Circle  
Boulder, Colorado 80301  
United States of America

Manufacturer's mark Daniel

Identification of the  
certified type An **Ultrasonic Gas Meter**  
Type: 3414 / 3415 / 3416 / 3417 / 3418 GUSM or Senior Sonic

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 137-1 (2012) "Gas meters"**

Accuracy class 0.5

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.

Issuing Authority **NMI Certin B.V., OIML Issuing Authority NL1**  
29 September 2020

Certification Board

**OIML Member State**  
The Netherlands

Number R137/2012-A-NL1-20.14  
Project number 2526774  
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The conformity was established by the results of tests and examinations provided in the associated reports:

- No. NMI-15200438-01 dated 3 November 2015 that includes 47 pages;
- No. NMI-15200787-01 dated 25 February 2016 that includes 50 pages;
- No. NMI-16200416-01 dated 19 August 2016 that includes 11 pages;
- No. NMI-16200582-02 dated 3 November 2016 that includes 7 pages.
- No. NMI-1902613-01 dated 23 August 2018 that includes 51 pages;
- No. NMI-1902374-01 dated 16 November 2018 that includes 19 pages;
- No. NMI-2282746-01 dated 3 May 2019 that includes 13 pages;
- No. NMI-2282746-02 dated 3 May 2019 that includes 26 pages.

### Characteristics of the measuring instrument

In Table 1 the general characteristics of the measuring instrument are presented.  
Table 2 gives an overview of the general characteristics of the family of instruments.

The construction of the measuring instrument is recorded in Documentation folder number T11159-3.

The ultrasonic gas meter is produced at the following production locations:

- Micro Motion, Inc., 5650 Brittmoore Road, Houston Texas 77041-5613, United States of America.
- Emerson SRL, Emerson street no. 4, 400461 Cluj-Napoca, Romania.

This measuring instrument was previously placed on the market by manufacturer "Daniel Measurement and Control, Inc."

The current manufacturer "Micro Motion, Inc.", continues to carry the mark "Daniel" on the instrument.

### Gas meter configuration

**Model 3414** Model 3414 is equipped with 4 measuring paths in a horizontal configuration.

**Model 3415** Model 3415 contains a model 3414 path layout and electronics. The model 3415 is additionally equipped with one check path which is connected to a separate set of electronics.

**Model 3416** Model 3416 contains a model 3414 path layout and electronics. The model 3416 is additionally equipped with one check path and one diagnostic path which are connected to a separate set of electronics.

**Model 3417** Model 3417 is composed of two model 3414 electronics and transducers built into a model 3417 spool piece. The meter can be used in the following configurations:

1. Two separate gas meters
2. Pay / check configuration

**Model 3418** Model 3418 is equipped with 8 measuring paths in a horizontal configuration.



**Table 2 General characteristics of the family of instruments**

The meter has the following flow characteristics:

Meter type	Diameter size			Maximum $v_{max}$ [m/s]	Minimum $v_t$ [m/s]	Minimum $v_{min}$ [m/s]	
	Inch	DN	Typical ranges [mm]				
3414, 3415, 3416, 3417	4	100	80 ~ 108	30,5	1/10 $v_{max}$	0,5	
	6	150	124 ~ 161				
3414, 3415, 3416, 3417, 3418	8	200	173 ~ 212				
	10	250	216 ~ 265				
	12	300	257 ~ 315				
	14	350	284 ~ 343				
	16	400	325 ~ 394				
	18	450	367 ~ 445				
	20	500	408 ~ 495				32,5
	24	600	491 ~ 597				30,5
	30	750	730 ~ 749	26			
	36	900	876 ~ 899	23			
42	1050	1029 ~ 1048	21				

**Notes:**

- If higher values are chosen for  $v_{min}$  and/or lower values for  $v_{max}$  it has to be taken into account that  $v_{min} \leq 0,05 v_{max}$  and  $v_t \leq 0,2 v_{max}$ .

The flow rates can be calculated as follows:

$$Q = v \cdot \frac{1}{4} \cdot \pi \cdot D^2 \cdot 3600$$

Where:

Q = flow rate [m<sup>3</sup>/h]

v = velocity [m/s]

D = diameter [m]

- Meter type 3414, 3415, 3416 and 3417 can be manufactured from 4 - 42 inch.
- Meter type 3418 can be manufactured from 8 - 42 inch.

**Installation conditions:**

Inlet piping and flow straightener

The meter is used, with the indicated minimum piping lengths, in one of the following configurations.

Type 3414 / 3415 / 3416 / 3417:

- For mild disturbances;  
5D piping followed by a CPA 50E straightener followed by 10D piping at the inlet of the meter.
- For mild and severe disturbances;  
5D piping followed by a CPA 55E straightener followed by 10D piping at the inlet of the meter.

Type 3418:

- For mild and severe disturbances;  
5D piping at the inlet of the meter.