

OIML Member State
The Netherlands

Issuing authority

NMi Certin B.V.
Person responsible: C. Oosterman

Applicant and
Manufacturer

KROHNE Altometer
Kerkeplaat 12
3313 LC Dordrecht
The Netherlands

Identification of the
certified type

An **Ultrasonic gas meter**
Type: ALTOSONIC V12; ALTOSONIC V12 Check

Characteristics

See page 2 and further

This OIML Certificate is issued under scheme B

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; 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.

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
8 October 2019


C. Oosterman
Head Certification Board

OIML Member State
The Netherlands

Number R 137/2012-B-NL1-19.08
Project number 1901377
Page 2 of 4

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

- No. CVN-710381-01 Rev. 1a dated 25 March 2009 that includes 45 pages;
- No. NMI-14200114-01 dated 29 October 2014 that includes 18 pages;
- No. NMI-19022545-02 dated 21 December 2018 that includes 33 pages;
- No. NMI 1902254-02 dated 21 December 2018 that includes 21 pages;
- No. NMI-1901377-01 dated 8 October 2019 that includes 22 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.

Table 1 General characteristics

Destined for the measurement of	Gas volume		
Environmental classes	M2 / E2		
Accuracy class	10D inlet with flow conditioner: 0.5 when only mild flow disturbances are expected 1.0 when severe flow disturbances can be expected 2D – Flow Conditioner – 3D: 0.5 for mild and severe disturbances.		
Maximum pressure	See table 3		
Ambient temperature range	-40 – + 55 °C		
Gas temperature range	-20 – +100 °C		
Designed for	Condensing humidity		
Orientation	Horizontal, vertical up and vertical down (all orientations)		
Flow direction	Bi-directional		
Path angle	60 – 80°		
Power supply voltage	24 V DC		
Software identification:			
Version number	KAFKA 2.0.0.0	KAFKA 2.0.0.1	KAFKA 2.0.0.2
Checksum	D4F94254	F0591D45	0EE46EDA

Table 2 General characteristics of the family of instruments

Meter size	Minimum Q_{min} $T_{gas} \leq 50 \text{ °C}$ [m ³ /h]	Minimum Q_{min} $T_{gas} \leq 100 \text{ °C}$ [m ³ /h]	Minimum Q_t [m ³ /h]	Maximum Q_{max} [m ³ /h]	P_{min} [bar(g)]
3" (80 mm)	8	12	124	620	1,0
4" (100 mm)	10	12	155	775	1,0
6" (150 mm)	16	30	400	2 000	1,5
8" (200 mm)	20	45	620	3 100	2,0
10" (250 mm)	25	80	860	4 300	2,5
12" (300 mm)	35	120	1 280	6 400	3,0
14" (350 mm)	45	150	1 620	8 100	3,5
16" (400 mm)	60	195	2 020	10 100	4,0
18" (450 mm)	100	240	2 480	12 400	4,5
20" (500 mm)	150	285	2 940	14 700	5,0
24" (600 mm)	180	375	3 880	19 400	6,0
26" (650 mm)	250	500	4 340	21 700	7,0
28" (700 mm)	300	600	4 960	24 800	7,0
30" (750 mm)	400	800	5 420	27 100	7,0

Note:

If higher values are chosen for Q_{min} or Q_t and/or lower values for Q_{max} , it has to be taken into account that:

- Ratio $Q_{max}/Q_{min} \geq 20$;
- Ratio $Q_{max}/Q_t \geq 5$

The measuring path of the ultrasonic gas meter consists of a meter body (spool piece) in which several measuring paths are incorporated. Each measuring path consists of two transducer, which are connected to the Signal Processing Unit (SPU).

Table 3 Transducers

Transducer type	Temperature range [°C]	Maximum pressure [bar(g)]	Sound frequency [kHz]
G5.00	-40 ... +70	150	270
G5.01		431	
G5.02		204	
G5.03		431	
G6.00	-40 ... +100	150	270
G6.01		431	
G6.02		204	
G6.03		431	
G7.01	-40 ... +180	150	330
G7.04		100	150

Note:

- The gas temperature range is limited to -20 ... +100 °C

Installation conditions:

Inlet piping and flow conditioner:

The gas meter is used with the indicated minimum piping lengths:

- Inlet conditions
 - 10D without a flow conditioner;
 - 2D – Krohne flow conditioner – 3D
- Outlet condition
 - 3D, with temperature sensor at least 2D downstream
- Bi-directional use
 - For bi-directional use, the temperature sensor shall be at least 4D upstream of the meter.