

**OIML Member State**  
The Netherlands

Number R137/2012-NL1-17.03  
Project number 16200535  
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Issuing authority  
Person responsible: NMI Certin B.V.  
C. Oosterman

Applicant and  
Manufacturer: Elster GmbH  
Steinern Straße 19-21  
55252 Mainz-Kastel  
Germany

Identification of the  
certified type: An **Ultrasonic Gas Meter**  
Type: Q.Sonic<sup>max</sup>

Characteristics: See page 2 and further

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.

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Issuing Authority: **NMI Certin B.V., OIML Issuing Authority NL1**  
1 September 2017



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

- No. NMI-9200288-01 dated 18 January 2012 that includes in total 48 pages;
- No. NMI-9200288-03 dated 3 July 2012 that includes in total 47 pages;
- No. NMI-16200535-01 revision 1 dated 1 September 2017 that includes 35 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 the Documentation folder no. T10586-1.

**Table 1 General characteristics**

Destined for the measurement of	Gas volume	
Environmental classes	M1 / E2	
Accuracy class	0.5	
Working pressure	The meter is either programmed with a density and viscosity setting, corresponding to the applied gas at preset pressure or using live pressure value from the optional pressure sensor. When using a preset value the maximum operating range for pressure $p_{max} / p_{min}$ is 6,25 symmetrically divided around the preset pressure.	
Gas temperature range	-40 – +100 °C gas meter -30 – +80 °C gas meter with EVCD	
Ambient temperature range (condensing)	-40 – +70 °C gas meter -40 – +55 °C gas meter with EVCD	
Designed for	Non condensing humidity / condensing humidity	
Orientation	Horizontal / vertical up / vertical down / all orientations	
Power supply voltage	18 – 30 V DC	
Software identification	Version	Checksum
Basic System	02.10.01.0003	7C01880E
Archive	02-07-A	420652AC
Postprocessing	02-08-C	459B14C1
Density & Viscosity	02.04.00.0001	BB87257F
Geometry Correction	02.04.00.0001	D8D14A5F
Modbus	02-20-B	F4348ED8
USM	02.10.00.0000	3DE0303F
NGQFB	01.00.07	B7568107
NGQMB	01.00.10	0C432F97
Gas Quality	02-09-C	C83315E2
Flow Conversion	02-07-D	587979DE



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

Diameter size			Minimum $Q_{min}$ [m <sup>3</sup> /h]	Minimum $Q_t$ [m <sup>3</sup> /h]	Maximum $Q_{max}$ [m <sup>3</sup> /h]
Inch	DN	Internal bore [mm]			
4	100	97	13	100	1000
6	150	146	18	220	2200
		139	16	200	2000
8	200	190	30	400	3500
		180	27	350	3200
10	250	240	48	590	5700
		230	44	540	5200
12	300	295	73	860	8300
		280	66	780	7500
14	350	325	85	1000	10000
		305	75	900	8800
20	500	488,9	200	2100	21000
		431,8	160	1600	16000
24	600	590,9	295	3000	30000
		532,22	240	2400	24000



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**Conditions for conformity assessment:**

*Installation of the ultrasonic gas meter*

For mild and severe flow disturbances the meter needs to be installed with the following minimum piping configuration as upstream inlet:

- mild disturbances: 5D straight piping.
- severe disturbances: 5D straight piping + CPA50 type A flow conditioner + 5D straight piping.

The outlet piping shall comply with:

- 3D straight piping (for both mild and severe disturbances).

Any components which could affect the gas flow must be avoided within the above prescribed inlet pipe length. The necessary straight pipe length is stated on the name plate of the meter. The inlet pipe must be designed as a straight pipe section of the same nominal diameter as the gas meter with a maximum tolerance of +/- 3%.

*Bi-directional flow measurement*

During conformity assessment it is sufficient to verify a bi-directional meter only in one direction.

*Temperature sensor*

The installation of a temperature sensor is at 2–5D from the outlet of the meter. For bi-directional applications an additional temperature sensor can be installed 2–5D upstream of the meter. The pipe spools including the thermo well(s) shall be installed and considered during the examination for putting into use of the gas meter.

*Alternative welded installation*

The meters can be welded directly without flanges to the inlet and outlet pipes. The inlet and outlet pipe length shall be according the requirements as prescribed above for mild and/or severe disturbances. The complete meter package (meter including welded piping) shall be calibrated in order to guarantee compliance with Class 0.5.