

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000038501_02

AMS designation: 100E / T100 for SO₂

Manufacturer: Teledyne Advanced Pollution Instrumentation
9480 Carroll Park Drive
San Diego
CA 92121-5201
USA

Test Laboratory: TÜV Rheinland Energy GmbH

This is to certify that the AMS has been tested and certified
according to the standards
VDI 4202-1 (2002), VDI 4203-3 (2004), EN 14212 (2012),
EN 15267-1 (2009) and DIN EN 15267-2 (2009).

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 10 pages).



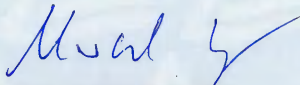
Suitability Tested
Complying with
2008/50/EC
EN 15267
Regular
Surveillance
www.tuv.com
ID 0000038501

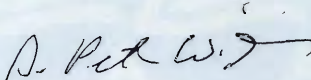
Publication in the German Federal Gazette
(BAnz) of 06 November 2007

This certificate will expire on:
04 March 2023

German Federal Environment Agency
Dessau, 05 March 2018

TÜV Rheinland Energy GmbH
Cologne, 04 March 2018


Dr. Marcel Langner
Head of Section II 4.1


ppa. Dr. Peter Wilbring

www.umwelt-tuv.eu
tre@umwelt-tuv.eu
Phone: + 49 221 806-5200

TÜV Rheinland Energy GmbH
Am Grauen Stein
51105 Köln

Test institute accredited to EN ISO/IEC 17025:2005 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00.

Test Report:	936/21205926/B dated 22 June 2007 Addendum 936/21219874/A dated 11 October 2012 Addendum 936/21221556/A dated 16 March 2013
Initial certification:	05 March 2013
Expiry date:	04 March 2023
Certificate:	Renewal (of previous certificate 0000038501_01 dated 20 August 2013 valid until 04 March 2018)
Publication:	06 November 2007, no. 206, p. 7925, chapter II no. 1.1

Approved application

The certified AMS is suitable for continuous ambient air monitoring of SO₂ (stationary operation).

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three-months field test.

The AMS is approved for an ambient temperature range of +5 °C to +40 °C.

The notification of suitability of the AMS, performance testing and the uncertainty calculation have been effected on the basis of the regulations applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for monitoring the limit values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for ambient air applications at which it will be installed.

Basis of the certification

This certification is based on:

- Test report 936/21205926/B of 22 June 2007 issued by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, addendum 936/21219874/A of 11 October 2012 issued by TÜV Rheinland Energie und Umwelt GmbH and addendum 936/21221556/A of 16 March 2013 issued by TÜV Rheinland Energie und Umwelt GmbH
- Suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- The ongoing surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: 06 November 2007, no. 206, p. 7925, chapter II no. 1.1,
UBA announcement dated 23 September 2007:

AMS designation:

M100E for SO₂

Manufacturer:

Teledyne Advanced Pollution Instrumentation, San Diego, USA / EAS GmbH, Brunn, Austria

Field of application:

For continuous ambient air monitoring of sulphur oxide (stationary operation)

Measuring ranges during performance testing:

SO₂: 0–700 µg/m³
0–1000 µg/m³

Software version:

Revision C.3

Test Report:

TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne
TÜV Rheinland Group, Cologne
Report no.: 936/21205926/B dated 22 June 2007

Publication in the German Federal Gazette: BAnz 26 January 2011, no. 14, p. 294, chapter IV notification 19,
UBA announcement dated 10 January 2011:

19 Notification as regards Federal Environment Agency notice of 23 September 2007 (BAnz p. 7925, chapter II, no. 1.1)

The current software version of the M100E ambient air measuring system for SO₂ manufactured by Teledyne Advanced Pollution Instrumentation is:

G.4 incl. Library Version 6.3

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 29 September 2010

Publication in the German Federal Gazette: BAnz 26 January 2011, no. 14, p. 294, chapter IV notification 20,
UBA announcement dated 10 January 2011:

20 Notification as regards Federal Environment Agency notice of 23 September 2007 (BAnz p. 7925, chapter II no. 1.1)

The M100E measuring system M100E for SO₂ manufactured by Teledyne Advanced Pollution Instrumentation is manufactured both in its old design M100E and in its new design Model T100. The new design differs from the old design only in that it has a new display, a new front plate and offers extended possibilities for communication.

The current name of the new design of the measuring system is:

Model T100

The current software version of the new design of the measuring system is:

1.0.0 bld 54 incl. Library Version 7.0.0 bld 57

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 29 September 2010

Publication in the German Federal Gazette: BAnz AT 05.03.2013 B10, chapter V notification 3,
UBA announcement dated 12 February 2013:

3 Notification as regards Federal Environment Agency (UBA) notices of 23 September 2007 (BAnz p. 7925, chapter II no. 1.1) and of 10 January 2011 (BAnz p. 294, chapter IV, 19th and 20th notification)

The M100E and T100 versions of the measuring system for SO₂ manufactured by Teledyne Advanced Pollution Instrumentation meets the requirements of EN 14212 (Issue June 2005). Furthermore the manufacturing process and the quality management for the M100E and T100 versions of the measuring system for SO₂ meet the requirements of EN 15267.

The test report on performance testing, report no. 936/21205926/B, and addendum to the test report, no. 936/21219874/A, which is an integral part of the test report, are available on the internet at www.qal1.de.

The current software version of the M100E measuring system is:

G.6 incl. Library Version 6.4

The current software version of the T100 measuring system is:

1.0.3 incl. Library Version 7.0.3

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 11 October 2012

Publication in the German Federal Gazette: BAnz AT 23.07.2013 B4, chapter V notification 15,
UBA announcement dated 03 July 2013:

15 Notification as regards Federal Environment Agency (UBA) notices of 23 September 2007 (BAnz p. 7925, chapter II no. 1.1) and of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter V 3rd notification)

The M100E and T100 versions of the measuring system for SO₂ manufactured by Teledyne Advanced Pollution Instrumentation meets the requirements of EN 14212 (Issue November 2012). An addendum as integral part of test report no. 936/21221556/A is available online at www.qal1.de.

The new designation of the M100E measuring system for SO₂ is 100E.

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 16 March 2013

Publication in the German Federal Gazette: BAnz AT 05.08.2014 B11, chapter V notification 17,
UBA announcement dated 17 July 2014:

17 Notification as regards Federal Environment Agency (UBA) notices of 23 September 2007 (BAnz P. 7925, chapter II number 1.1) and of 3 July 2013 (BAnz AT 23.07.2013 B4, chapter V 15th notification)

The 100E and T100 measuring systems for monitoring SO₂ manufactured by Teledyne Advanced Pollution Instrumentation will be equipped with the PU3060-N811 (115/230V) vacuum pump manufactured by KNF in the future.

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 27 March 2014

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chapter V notification 7,
UBA announcement dated 18 February 2016:

7 Notification as regards Federal Environment Agency (UBA) notices of 23 September 2007 (BAnz p. 7925, chapter II number 1.1) and of 17 July 2014 (BAnz AT 05.08.2014 B11, chapter V 17th notification)

The current software versions of the 100E/T100 measuring system for SO₂ manufactured by Teledyne Advanced Pollution Instrumentation are:

Package Version: 1.0.4

Driver Version: 1.0.12

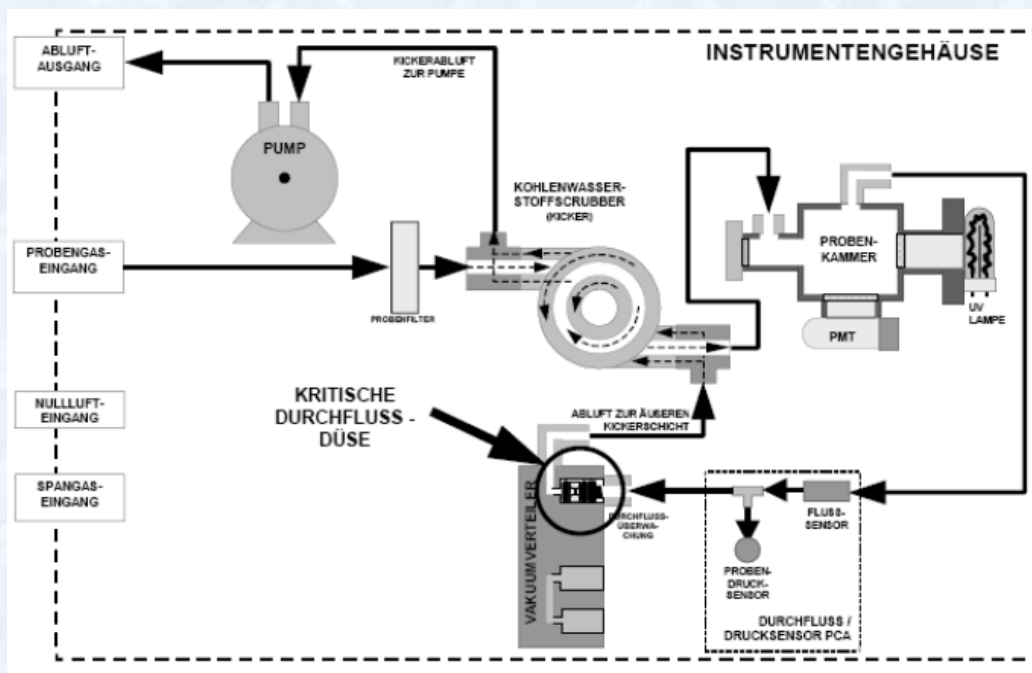
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 19 October 2015

Certified product

This certification applies to automated measurement systems conforming to the following description:

The physical principle on which the measuring method of the 100E and T100 versions of the measuring system relies is based on the fluorescence, which appears when sulphur dioxide (SO₂) is activated by UV-light at a wavelength in the range between 190 nm and 230 nm and thus complies with the reference method described in the standard EN 14212.

The schematic set-up / flow diagram of the 100E and T100 versions of the measuring system (with optional zero/span gas port) is as follows:



The current software version is:

Package Version: 1.0.4
Driver Version: 1.0.12

The current manual version is:

06807 Rev. F 19 April 2016

General remarks

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. The manufacturer is required to maintain an approved quality management system controlling the manufacturing process for the certified product. Both the product and the quality management systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energy GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate.

This document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. Upon revocation of the publication the certificate loses its validity. After the expiration of the certificate and on request of TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must no longer be used.

The relevant version of this certificate and its expiration date are also accessible on the internet at qal1.de.

Certification of the 100E / T100 measuring system is based on the documents listed below and the regular, continuous surveillance of the manufacturer's quality management system:

Basic testing

Test report: 936/21205926/B dated 22 June 2007
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne
Publication: BAnz 06 November 2007, no. 206, p. 7925, chapter II no. 1.1
UBA announcement dated 23 September 2007

Notification

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 29 September 2010
Publication: BAnz 26 January 2011, no. 14, p. 294, chapter IV notifications 19 and 20
UBA announcement dated 10 January 2011
(Software & design changes)

Initial certification according to EN 15267

Certificate no. 0000038501: 22 March 2013
Expiry date of the certificate: 04 March 2018

Test report: 936/21205926/B dated 22 June 2007
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne
Addendum: 936/21219874/A dated 11 October 2012
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 11 October 2012
Publication: BAnz AT 05.03.2013 B10, chapter V notification 3
UBA announcement dated 12 February 2013

Supplementary testing according to EN 15267

Certificate no. 0000038501_01: 20 August 2013
Expiry date of the certificate: 04 March 2018

Test report: 936/21205926/B dated 22 June 2007
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne
Addendum: 936/21219874/A dated 11 October 2012 issued by TÜV Rheinland
Energie und Umwelt GmbH
Addendum: 936/21221556/A dated 16 March 2013 issued by TÜV Rheinland Energie und
Umwelt GmbH
Publication: BAnz AT 23.07.2013 B4, chapter V notification 15
UBA announcement dated 03 July 2013

Notifications in accordance with EN 15267

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 27 March 2014
Publication: BAnz AT 05.08.2014 B11, chapter V notification 17
UBA announcement dated 17 July 2014
(New vacuum pump)

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 19 October 2015
Publication: BAnz AT 14.03.2016 B7, chapter V notification 7
UBA announcement dated 18 February 2016
(New software version)

Renewal of the certificate

Certificate no. 0000038501_02: 05 March 2018
Expiry date of the certificate: 04 March 2023

Calculation of overall uncertainty (Device 1)

Measuring device:		Teledyne API M100E / T100		Serial number:		SN 1 (1177)		
Measured component:		SO2		1h-Limit value:		132 nmol/mol		
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty	Square of partial uncertainty			
1	Repeatability standard deviation at zero	≤ 1.0 nmol/mol	0.300	U _{r,z}	0.09	0.0079		
2	Repeatability standard deviation at 1h-limit value	≤ 3.0 nmol/mol	0.500	U _{r,1h}	0.15	0.0230		
3	"lack of fit" at 1h-limit value	≤ 4.0% of the meas. value	-0.400	U _{l,1h}	-0.30	0.0929		
4	Sensitivity coefficient of sample gas pressure at 1h-limit value	≤ 3.0 nmol/mol/kPa	0.020	U _{gp}	0.53	0.2846		
5	Sensitivity coefficient of sample gas temperature at 1h-limit value	≤ 1.0 nmol/mol/K	-0.013	U _{gt}	-0.10	0.0105		
6	Sensitivity coefficient of surrounding temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.050	U _{st}	0.39	0.1554		
7	Sensitivity coefficient of electrical voltage at 1h-limit value	≤ 0.30 nmol/mol/V	-0.010	U _v	-0.11	0.0117		
8a	Interferent H ₂ O with 21 mmol/mol	≤ 10 nmol/mol (Zero) ≤ 10 nmol/mol (Span)	-0.400 -1.700	U _{H2O}	-1.28	1.6472		
8b	Interferent H ₂ S with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.300 0.900	U _{int,pos}	3.45	11.8950		
8c	Interferent NH ₃ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.300 0.100	or				
8d	Interferent NO with 500 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.500 3.200					
8e	Interferent NO ₂ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.010 0.500					
8f	Intererent m-Xylene with 1 µmol/mol	≤ 10 nmol/mol (Zero) ≤ 10 nmol/mol (Span)	0.000 1.200					U _{int,neg}
9	Averaging effect	≤ 7.0% of the meas. value	2.400					U _{av}
18	Difference sample/calibration port	≤ 1%	0.000		U _{asc}	0.00	0.0000	
21	Uncertainty of test gas	≤ 3%	1.000	U _{cg}	0.66	0.4356		
Combined standard uncertainty				U _c	4.2319	nmol/mol		
Expanded uncertainty				U	8.4639	nmol/mol		
Relative expanded uncertainty				W	6.41	%		
Maximum allowed expanded uncertainty				W _{req}	15	%		

Measuring device:		Teledyne API M100E / T100		Serial number:		SN 1 (1177)		
Measured component:		SO2		1h-Limit value:		132 nmol/mol		
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty	Square of partial uncertainty			
1	Repeatability standard deviation at zero	≤ 1.0 nmol/mol	0.300	U _{r,z}	0.09	0.0079		
2	Repeatability standard deviation at 1h-limit value	≤ 3.0 nmol/mol	0.500	U _{r,1h}	not considered, as U _{r,1h} = 0.15 < U _{r,f}		-	
3	"lack of fit" at 1h-limit value	≤ 4.0% of the meas. value	-0.400	U _{l,1h}	-0.30	0.0929		
4	Sensitivity coefficient of sample gas pressure at 1h-limit value	≤ 3.0 nmol/mol/kPa	0.020	U _{gp}	0.53	0.2846		
5	Sensitivity coefficient of sample gas temperature at 1h-limit value	≤ 1.0 nmol/mol/K	-0.013	U _{gt}	-0.10	0.0105		
6	Sensitivity coefficient of surrounding temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.050	U _{st}	0.39	0.1554		
7	Sensitivity coefficient of electrical voltage at 1h-limit value	≤ 0.30 nmol/mol/V	-0.010	U _v	-0.11	0.0117		
8a	Interferent H ₂ O with 21 mmol/mol	≤ 10 nmol/mol (Zero) ≤ 10 nmol/mol (Span)	-0.400 -1.700	U _{H2O}	-1.28	1.6472		
8b	Interferent H ₂ S with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.300 0.900	U _{int,pos}	3.45	11.8950		
8c	Interferent NH ₃ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.300 0.100	or				
8d	Interferent NO with 500 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.500 3.200					
8e	Interferent NO ₂ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero) ≤ 5.0 nmol/mol (Span)	0.010 0.500					
8f	Intererent m-Xylene with 1 µmol/mol	≤ 10 nmol/mol (Zero) ≤ 10 nmol/mol (Span)	0.000 1.200					U _{int,neg}
9	Averaging effect	≤ 7.0% of the meas. value	2.400					U _{av}
10	Reproducibility standard deviation under field conditions	≤ 5.0% of 3 month average	4.800		U _{r,f}	6.34	40.1449	
11	Long term drift at zero level	≤ 5.0 nmol/mol	1.060	U _{d,1,z}	0.61	0.3745		
12	Long term drift at 1h-limit value	≤ 5.0% of max. of cert. range	1.490	U _{d,1,1h}	1.14	1.2894		
18	Difference sample/calibration port	≤ 1%	0.000	U _{asc}	0.00	0.0000		
21	Uncertainty of test gas	≤ 3%	1.000	U _{cg}	0.66	0.4356		
Combined standard uncertainty				U _c	7.7263	nmol/mol		
Expanded uncertainty				U	15.4525	nmol/mol		
Relative expanded uncertainty				W	11.71	%		
Maximum allowed expanded uncertainty				W _{req}	15	%		

Calculation of overall uncertainty (Device 2)

Measuring device:		Teledyne API M100E / T100		Serial number:		SN 2 (1183)	
Measured component:		SO2		1h-Limit value:		132 nmol/mol	
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty		Square of partial uncertainty	
1	Repeatability standard deviation at zero	≤ 1.0 nmol/mol	0.500	$U_{r,z}$	0.15	0.0222	
2	Repeatability standard deviation at 1h-limit value	≤ 3.0 nmol/mol	0.900	$U_{r,1h}$	0.27	0.0741	
3	"lack of fit" at 1h-limit value	≤ 4.0% of the meas. value	0.200	$U_{l,1h}$	0.15	0.0232	
4	Sensitivity coefficient of sample gas pressure at 1h-limit value	≤ 3.0 nmol/mol/kPa	0.060	U_{gp}	1.60	2.5613	
5	Sensitivity coefficient of sample gas temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.013	U_{gt}	0.10	0.0105	
6	Sensitivity coefficient of surrounding temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.030	U_{st}	0.24	0.0559	
7	Sensitivity coefficient of electrical voltage at 1h-limit value	≤ 0.30 nmol/mol/V	0.020	U_v	0.22	0.0467	
8a	Interferent H ₂ O with 21 mmol/mol	≤ 10 nmol/mol (Zero)	-0.100	U_{H_2O}	-1.21	1.4668	
		≤ 10 nmol/mol (Span)	-1.600				
8b	Interferent H ₂ S with 200 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.400	$U_{int,pos}$	3.56	12.6928	
		≤ 5.0 nmol/mol (Span)	0.400				
8c	Interferent NH ₃ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.300	or			
		≤ 5.0 nmol/mol (Span)	1.100				
8d	Interferent NO with 500 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.400				
		≤ 5.0 nmol/mol (Span)	2.900				
8e	Interferent NO ₂ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.100				
		≤ 5.0 nmol/mol (Span)	0.800				
8f	Interferent m-Xylene with 1 µmol/mol	≤ 10 nmol/mol (Zero)	0.300	$U_{int,neg}$			
		≤ 10 nmol/mol (Span)	0.900				
9	Averaging effect	≤ 7.0% of the meas. value	1.100	U_{av}	0.84	0.7028	
18	Difference sample/calibration port	≤ 1%	0.000	U_{asc}	0.00	0.0000	
21	Uncertainty of test gas	≤ 3%	1.000	U_{cg}	0.66	0.4356	
				Combined standard uncertainty		u_c	4.2535 nmol/mol
				Expanded uncertainty		U	8.5069 nmol/mol
				Relative expanded uncertainty		W	6.44 %
				Maximum allowed expanded uncertainty		W_{req}	15 %

Measuring device:		Teledyne API M100E / T100		Serial number:		SN 2 (1183)	
Measured component:		SO2		1h-Limit value:		132 nmol/mol	
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty		Square of partial uncertainty	
1	Repeatability standard deviation at zero	≤ 1.0 nmol/mol	0.500	$U_{r,z}$	0.15	0.0222	
2	Repeatability standard deviation at 1h-limit value	≤ 3.0 nmol/mol	0.900	$U_{r,1h}$	not considered, as $u_{r,1h} = 0.27 < u_{r,f}$	-	
3	"lack of fit" at 1h-limit value	≤ 4.0% of the meas. value	0.200	$U_{l,1h}$	0.15	0.0232	
4	Sensitivity coefficient of sample gas pressure at 1h-limit value	≤ 3.0 nmol/mol/kPa	0.060	U_{gp}	1.60	2.5613	
5	Sensitivity coefficient of sample gas temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.013	U_{gt}	0.10	0.0105	
6	Sensitivity coefficient of surrounding temperature at 1h-limit value	≤ 1.0 nmol/mol/K	0.030	U_{st}	0.24	0.0559	
7	Sensitivity coefficient of electrical voltage at 1h-limit value	≤ 0.30 nmol/mol/V	0.020	U_v	0.22	0.0467	
8a	Interferent H ₂ O with 21 mmol/mol	≤ 10 nmol/mol (Zero)	-0.100	U_{H_2O}	-1.21	1.4668	
		≤ 10 nmol/mol (Span)	-1.600				
8b	Interferent H ₂ S with 200 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.400	$U_{int,pos}$	3.56	12.6928	
		≤ 5.0 nmol/mol (Span)	1.100				
8c	Interferent NH ₃ with 200 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.400	or			
		≤ 5.0 nmol/mol (Span)	2.900				
8d	Interferent NO with 500 nmol/mol	≤ 5.0 nmol/mol (Zero)	0.100				
		≤ 5.0 nmol/mol (Span)	0.800				
8e	Interferent NO ₂ with 200 nmol/mol	≤ 10 nmol/mol (Zero)	0.300				
		≤ 10 nmol/mol (Span)	0.900				
8f	Interferent m-Xylene with 1 µmol/mol	≤ 5.0 nmol/mol (Zero)	0.100	$U_{int,neg}$			
		≤ 5.0 nmol/mol (Span)	0.800				
9	Averaging effect	≤ 7.0% of the meas. value	1.100	U_{av}	0.84	0.7028	
10	Reproducibility standard deviation under field conditions	≤ 5.0% of 3 month average	4.800	$U_{r,f}$	6.34	40.1449	
11	Long term drift at zero level	≤ 5.0 nmol/mol	1.350	$U_{d,l,z}$	0.78	0.6075	
12	Long term drift at 1h-limit value	≤ 5.0% of max. of cert. range	1.560	$U_{d,l,1h}$	1.19	1.4134	
18	Difference sample/calibration port	≤ 1%	0.000	U_{asc}	0.00	0.0000	
21	Uncertainty of test gas	≤ 3%	1.000	U_{cg}	0.66	0.4356	
				Combined standard uncertainty		u_c	7.7578 nmol/mol
				Expanded uncertainty		U	15.5156 nmol/mol
				Relative expanded uncertainty		W	11.75 %
				Maximum allowed expanded uncertainty		W_{req}	15 %