ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Umwelt Bundesamt

Certificate number: 3919266-ts

TÜV SÜD Industrie Service

CERTIFICATE

of product conformity (QAL 1)

Certificate number: 3919266-ts

Certified AMS	KT 15.69 IIP for temperature measurement in combustion gases
Manufacturer	Heitronics Infrarot Messtechnik GmbH Kreuzberger Ring 40 65205 Wiesbaden Germany
Test institute	TÜV SÜD Industrie Service GmbH

This is to certify that the AMS has been tested and found to comply with the standards DIN EN 15267-1 (2009), DIN EN 15267-2 (2023), DIN EN 15267-3 (2008) and DIN EN 14181 (2015).

Certification applies to the conditions listed in this certificate (the certificate consists of 6 pages).

DIN EN 15267 TÜV SÜD Eignungsprüfung Produktion überwacht Valid until 05/2029

Certificate No.: 3919266-ts

Publication in the German Federal Gazette
(BAnz) of 10 May 2024

This certificate will expire on
09 May 2029

Umweltbundesamt
Dessau, 23 May 2024

Dr. Marcel Langner
Head of Section II 4

TÜV SÜD Industrie Service GmbH
Testing laboratory emission measurement/ calibration
Munich, 22 May 2024

Hans-Jörg Eisenberger

TÜV®

Test report	3533417 from 29 September 2023
Initial certification	10 May 2024
Certification validity until	09 May 2029 (5 years)
Publication	BAnz AT 10 May 2024 B7, chapter II, no. 1.2

Approved application

The tested AMS is suitable for use at plants requiring authorisation (13. BImSchV:2021, 17. BImSchV:2021) as well as at plants in accordance with the 27. BImSchV:2013. The suitability for this applications were assessed on the basis of a laboratory test and a field test of the AMS lasting over more than three months in the afterburning zone at plant according to Directive 2010/75/EU chapter IV (17. BImSchV). The measuring system is approved for ambient temperatures between -20 °C bis +50 °C.

The AMS publication, the suitability test and the performance of the uncertainty calculations were conducted based on the provisions valid at the time of testing. Due to possible amendments to legal foundations, every user should ensure before use of the AMS that it is suitable for monitoring the applicable values.

The operator should consult the manufacturer to ensure that the AMS is suitable for the plant at which it is to be installed.

Note:
The legal regulations mentioned do not always have to correspond to the current state of legislation. Each user should ensure, if necessary in consultation with the competent authority, that this AMS fulfils the legal requirements for the intended use. Furthermore, it cannot be ruled out that legal regulations on the use of a measuring system for emission monitoring may change during the term of the certificate.

Certification basis

This certificate is based on:

- TÜV SÜD Industrie Service GmbH test report 3533417 from 29 September 2023
- Suitability announcement by the German Federal Environmental Agency as relevant body
- The ongoing surveillance of the product and the manufacturing process

- Publication in the German Federal Gazette (BAnz AT 10 May 2024 B7, chapter II, no. 1.2, UBA publication from 19 March 2024):

AMS: IR-Pyrometer KT 15.69 IIP

Manufacturer: Heitronics GmbH Infrarot Messtechnik, Wiesbaden

Suitability: For plants requiring authorisation and plants in compliance with the 27. BImSchV for monitoring the minimum temperature in combustion gases

Measurement range in the suitability test:

Component	Certification range	Unit
Temperature	400 - 1400	°C

Software version: 5.14

Restrictions:

None

Notes:

1. The maintenance interval is four weeks.
2. The AMS must be verified annually by using a Planckian radiator.

Test report: TÜV Süd Industrie Service GmbH, Munich
Report no.: 3533417 from 29 September 2023

Certified Product

The certificate applies to AMS that comply with the following description:

The tested measuring system consists of the components for the radiation pyrometer with a fixed focused long lens, an optical sight, evaluation and operating software as well as optionally with a shockblower.

The radiation pyrometer KT 15.69 IIP works in a spectral range where hot Carbondioxide over 400 °C has a large emissivity. However cold CO_2 is largely transmissive. For a selective filtering to a specific wavelength (4,66 µm) an interference filter is used. Because of the seal-air tube with schockblower the pyrometer is protected from dust and corrosive gases. Optionally a shockblower can be used.

The entire system consits of the following components:

Radiation pyrometer
Manufacturer: Heitronics Infrarot Messtechnik GmbH, 65205 Wiesbaden
Type: KT 15.69 IIP

Components

Power supply unit
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type: T24 II

Adapter
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type: BX tube with connection for seal-air

Adapter
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type: B4 M72

Adapter
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type: BX M72 with Sapphire disk

Adapter
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type: B2-Li

Adjustable flange
Manufacturer: Heitronics Infrarot Messtechnik GmbH
Type:: B5J

Schockblower (option)
Manufacturer: VSR Industrietechnik GmbH, 47189 Duisburg
Type: VSR Blaster Luftinjektor

General notes

This certificate is based on the analyser tested. The manufacturer is responsible for the continuous compliance of the production to the DIN EN 15267 requirements. The manufacturer is required to maintain an approved quality management system to control the manufacture of the certified product. Regular monitoring must be conducted on both the product and the quality management systems.

If the product from the current production series no longer comply with the certified product, the Environmental Service Department of TÜV SÜD Industrie Service GmbH must be informed (address see footnote).

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This can be applied on the product or used in publicity material for the certified product.

This document and the certification mark shall remain the property of TÜV SÜD Industrie Service GmbH.

Should the publication be revoked, this certificate will become invalid. This document must be returned when the period of validity has elapsed and at the request of TÜV SÜD Industrie Service GmbH and the certification mark may no longer be used.

The current version of the certificate and its expiration is also accessible on the internet at **qal1.de**.

The certification of KT 15.69 IIP is based on the following documents and the regular continuous monitoring of the manufacturer's quality management system:

Initial certification in accordance with DIN EN 15267:

Certificate no.: 3919266-ts	10 May 2024
Certificate validity until	09 May 2029 (5 years)

Report no.: 3533417 from 29 September 2023
TÜV SÜD Industrie Service GmbH
Publication: BAnz AT 10 May 2024 B7, chapter II, no. 1.2
UBA publication from 19 March 2024

Calculation of total uncertainty for QAL1 testing to DIN EN 14181 and DIN EN 15267-3 for KT 15.69 IIP

Total uncertainty for measurement range 400 – 1400 °C

Performance characteristic	*Uncertainty*	*Value standard uncertainty °C*	*Square of standard uncertainty °C²*
Lack-of-fit	u_{lof}	-1,097	1,2034
Zero drift	$u_{d,z}$	-4,619	21,3352
Span drift	$u_{d,s}$	-13,279	176,3318
Influence of ambient temperature at span	u_t	3,544	12,5599
Influence of sample gas pressure	u_p		
Influence of sample gas flow	u_f		
Influence of supply voltage	u_v	0,358	0,1282
Cross-sensitivity (interferences)	u_i		
Repeatability standard deviation at reference point	$u_r = s_r$	0,061	ur < du
Standard deviation from paired measurements	$u_d = s_d$	7,606	57,8512
Uncertainty of transfer-standard-pyrometers 5,4°C	u_{rm}	5,4	29,16
Excursion of measurement beam	u_{mb}	-3,487	12,1592
Converter efficiency for AMS measuring NOx	u_{ce}		
Variation of response factors (TOC)	u_{rf}		
		Sum	310,7289
Combined standard uncertainty	$u_c = \sqrt{\sum(u_i)^2}$	17,6275	°C
Total expanded uncertainty	$U_{0,95} = 1,96 \times u_c$	34,5499	°C
Relativ expanded uncertainty	U	**4,1**	% ELV
Permissible uncertainty of EN 15267-3	(at ELV 850 °C)	**7,5**	% ELV
Complied with requirements relating to the measurement uncertainty		**yes**	regarding EN 15267-3
Permissible uncertainty 13. / 17. BImSchV	(at ELV 850 °C)	**10**	% ELV
Complied with requirements relating to the measurement uncertainty		**yes**	regarding 13. / 17. BImSchV