

CERTIFICATE

of product conformity (QAL 1)

Certificate number: 3809906-ts

Certified AMS	ZiDM-5 QALDUST for dust
Manufacturer	Fuji Electric France S.A.S. 46, Rue Georges Besse, ZI du Brézet 63039 Clermont-Ferrand CEDEX 2 France

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).**



Certificate No.: 3809906-ts

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

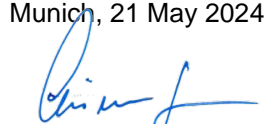
This certificate will expire on:
09 May 2029

Umweltbundesamt
Dessau, den 22 May 2024

TÜV SÜD Industrie Service GmbH
Testing laboratory emission measurement/
calibration
Munich, 21 May 2024



Dr. Marcel Langner
Head of Section II 4



Hans-Jörg Eisenberger

Certificate number: 3809906-ts

Test report	3809906 from 06 September 2023
Initial certification	10 May 2024
Certification validity until	09 May 2029 (5 years)
Publication	BAnz AT 10.05.2024 B7, chapter I, no 2.1

Approved application

The tested AMS is suitable for use at plants requiring authorisation (13th BImSchV:2021, 17th BImSchV:2021) and plants in accordance with the 27th BImSchV:2013, the 30th BImSchV:2019 and the 44th BImSchV:2021. The suitability for this application was assessed on the basis of a laboratory test and a field test of the AMS ZiDM-5 QALDUST lasting over more than three months at plant according to Directive 2010/75/EU, chapter III (13th BImSchV). The measuring system is approved for ambient temperatures between -20 °C and +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 3809906 from 06 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 I Nr. 2.1, UBA publication from 19 March 2024)

AMS: ZiDM-5 QALDUST for dust

Manufacturer: Fuji Electric France S.A.S.

Suitability: For plants requiring authorisation and plants in compliance with the 27th BImSchV, the 30th BImSchV and the 44th BImSchV

Measurement ranges in the suitability test:

Component	Certification range	Supplementary measurement ranges		Unit
Dust	0 – 7,5	0 – 15	0 – 100	mg/m ³

Software version: 3.2.4

Restrictions:

1. It cannot be used in steam saturated flue gases. Droplet emissions also influence the measured dust concentration.
2. It cannot be used directly after electric filters.
3. It can be used for flue gas flow rates in the range from 3 – 40 m/s

Notes:

1. The maintenance interval is three months.
2. The AMS can only be aligned using the automatic alignment function at zero and span point.
3. At a flue gas flow rate in the 3 – 40 m/s range the dependence of the flue gas flow rate is eliminated by the integrated flow rate compensation. To this end the analogue input 4 – 20 mA shall be covered with a signal to represent the flue gas flow rate.
4. At constant flue gas flow rates ($\pm 10\%$ of the average flow rate) a fixed value can also be entered for the flue gas flow rate.
5. When using a purge air feature, adherence to the stipulated purge air amount should be checked.
6. The AMS shall be operated at an interval of 24 h for the automatic control cycle.
7. The manufacturer's recommendations on probe lengths should be followed. Probe lengths from 250 mm to 1000 mm can be used.
8. The power supply can be 230 V AC or 24 V DC.
9. The AMS has a digital Modbus interface (serial RS 485), corresponding to VDI 4201 page 1 and 3.

Test report: TÜV SÜD Industrie Service GmbH, Munich
Report no.: 3809906 from 6 September 2023

Certified Product

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

The entire tested measuring system ZiDM-5 QALDUST consists of the probe, the probe extension, the purge air adapter and the electronic unit attached to the probe.

The AMS ZiDM-5 QALDUST is used to detect the dust mass concentration in flue and process gases. The measuring system works according to the principle of the triboelectric effect, in which an insulated probe is electrically charged by dust particles that hit it or flow past it in the vicinity, and this charge is detected. The measuring system also has a digital interface of the Modbus type, which is implemented serially as EIA-485.

The entire AMS consist of the following components:

Entire system

Manufacturer:	Fuji Electric France S.A.S.
Type:	ZiDM-5 QALDUST
Software:	3.2.4
Measurement principle:	triboelectric effect

Accessories:

Welded adapter MC900229
Blind cap MC900033
Tri-Clamp damp MC900034
Tri-Clamp Teflon seal MC900007
Purge air dapter MC900203
Probe extension 250, 500 mm
User software Dust Tool

Optional accessories:

Interface adapter RS 485 USB EC900041
Sintrol reference signal generator

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 **qa11.de**.

The certification of the ZIDM-5 QALDUST measuring system 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. 3809906-ts	10 May 2024
Certificate validity until	09 May 2029 (5 years)

Report no.: 3809906 from 06 September 2023,
TÜV SÜD Industrie Service GmbH
Publication: BAnz AT 10 May 2024 B7, chapter I no. 2.1
UBA publication from 19 March 2024

Calculation of total uncertainty for QAL1 testing according to DIN EN 14181 and DIN EN 15267-3 for the measuring system ZiDM-5 QALDUST

Total uncertainty for the measurement component dust in the measuring range 0 – 7,5 mg/m³

<i>Performance characteristic</i>	<i>Uncertainty</i>	<i>Value standard uncertainty mg/m³</i>	<i>Quadrat der Standardunsicherheit in (mg/m³)²</i>
Lack-of-fit	u_{lof}	-0,046	0,0021
Zero drift from field test	$u_{d,z}$	-0,003	0,00001
Span drift from field test	$u_{d,s}$	-0,027	0,00073
Influence of ambient temperature at span	u_t	0,047	0,00221
Influence of sample gas pressure	u_p		
Influence of sample gas flow	u_f		
Influence of voltage supply	u_v	0,019	0,00036
Cross-sensitivity (interference)	u_i		
Repeatability standard deviation at span	$u_r = s_r$	0,028	$u_r < u_d$
Standard deviation from paired measurements under field cond.	$u_d = s_d$	0,042	0,00176
Uncertainty of reference material 3 % at 80% of CR	u_{rm}	0,104	0,0108
Excursion of measurement beam	u_{mb}		
Converter efficiency for AMS measuring NOx	u_{ce}		
Variation of response factors (TOC)	u_{rf}		
		total	0,01799
Combined standard uncertainty	$u_c = \sqrt{\sum (u_i)^2}$	0,134	mg/m ³
Total expanded uncertainty	$U_{0,95} = 1,96 \times u_c$	0,263	mg/m ³
Relativ expanded uncertainty	U	5,3	% ELV
Permissible uncertainty of EN 15267-3	(of ELV 5 mg/m ³)	22,5	% ELV
Complied with requirements relating to the measurement uncertainty		yes	regarding EN 15267-3
Permissible uncertainty 13. / 17. BImSchV	(of ELV 5 mg/m ³)	30	% ELV
Complied with requirements relating to the measurement uncertainty		yes	regarding 13. / 17. BImSchV