

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000053808_01

AMS designation: PCME QAL 360 for dust

Manufacturer: ENVEA UK Ltd.
ENVEA House, Rose & Crown Road
Swavesey / Cambridge CB24 4RB
United Kingdom

Test Laboratory: TÜV Rheinland Energy GmbH

**This is to certify that the AMS has been tested
and found to comply with the standards
EN 15267-1 (2009), EN 15267-2 (2009), EN 15267-3 (2007)
and EN 14181 (2014).**

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 9 pages).
The present certificate replaces certificate 0000053808_00 of 25 April 2017.



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000053808

Publication in the German Federal Gazette
(BAnz) of 15 March 2017


German Federal Environment Agency
Dessau, 02 March 2022

This certificate will expire on:
14 March 2027

TÜV Rheinland Energy GmbH
Cologne, 01 March 2022



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

Test report:	936/21230922/A of 10 June 2016
Initial certification:	25 April 2017
Expiry date:	14 March 2027
Certificate	Renewal (of previous certificate 0000053808_00 of 25 April 2017 valid until 14 March 2022)
Publication:	BAnz AT 15.03.2017 B6, chapter I number 2.2

Approved application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13th BImSchV), chapter IV (17th BImSchV), 30th BImSchV, plants in compliance with TA Luft, plants according to the 27th BImSchV and other plants requiring official approval. The measured ranges have been selected so as to ensure as broad a field of application as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a 3-month field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of -20 °C to +50 °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 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 the intended purpose.

Basis of the certification

This certification is based on:

- Test report 936/21230922/A of 10 June 2016 by TÜV Rheinland Energy 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: BAnz AT 15.03.2017 B6, chapter I number 2.2, UBA announcement dated 22 February 2017:

AMS designation:

PCME QAL 360 for dust

Manufacturer:

ENVEA UK Ltd. , St. Ives, United Kingdom

Field of application:

For measurements at plants requiring official approval and plants according to 27th BImSchV

Measuring ranges during performance testing:

Component	Certification range	Unit
Dust	0 – 7.5*	mg/m ³

* corresponds to 0 to 30 SLU (scattered light units)

Component	supplementary ranges			Unit
Dust	0 – 50	0 – 100	0 – 200	SLU

Software versions:

Sensor: 5.0
 Optional control units:
 Interface Modul: 8.70
 MultiController: 8.70
 ProController: 1.02

Restrictions: None

Notes:

1. The maintenance interval is four weeks.
2. The QAL 360 measuring system is available in various configurations:

Product name:	Configuration:
Sensor	
QAL 360c	Independent
QAL 360s Standard	with interface module
QAL 360s Plus	with MultiController
QAL 360s Pro	with ProController

3. During performance testing in accordance with EN 15267-3, the requirement for the determination coefficient R² of the calibration function was not fulfilled.
4. The measuring system also meets the requirements in the voltage range 126V to 98V.

Test Report:

TÜV Rheinland Energy GmbH, Cologne
 Report no.: 936/21230922/A of 10 June 2016

Publication in the German Federal Gazette: BAnz AT 26.03.2018 B8, chapter V
32nd notification, UBA announcement dated 21 February 2018:

**32 Notification as regards Federal Environment Agency (UBA) notice
of 22 February 2017 (BAnz AT 15.03.2017 B6, chapter II number 2.2)**

The current software versions of the QAL 360 measuring system
for dust manufactured by PCME Ltd. are:

Sensor:	5.3
Control units:	
Interface Module:	9.03
MultiController:	9.03
ProController:	2.09

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017

Publication in the German Federal Gazette: BAnz AT 26.03.2019 B7, chapter IV
50th notification, UBA announcement dated 27 February 2019:

**50 Notification as regards Federal Environment Agency (UBA) notices
of 22 February 2017 (BAnz AT 15.03.2017 B6, chapter II number 2.2) and
of 21 February 2018 (BAnz AT 26.03.2018 B8, chapter V 32nd notification)**

The current software versions of the QAL 360 measuring system
for total dust manufactured by PCME Ltd. are:

Sensor:	5.7
Control units:	
Interface module:	9.04
MultiController:	9.04
ProController:	2.19

Statement issued by TÜV Rheinland Energy GmbH dated 2 October 2018

Publication in the German Federal Gazette: BAnz AT 24.03.2020 B7, chapter IV
42nd notification, UBA announcement dated 24 February 2020:

**42 Notification as regards Federal Environment Agency (UBA) notices
of 22 February 2017 (BAnz AT 15.03.2017 B6, chapter II number 2.2) and
of 27 February 2019 (BAnz AT 26.03.2019 B7, chapter IV 50th notification)**

The company name has changed from PCME Ltd. to ENVEA UK Ltd.

The new designation for the QAL 360 dust measuring system manufactured by
ENVEA UK Ltd. is now PCME QAL 360.

The new production site for the PCME QAL 360 dust measuring system
manufactured by ENVEA UK Ltd. is:

ENVEA UK Ltd.
ENVEA House
Rose & Crown Road
Swavesey
Cambridge CB24 4RB
United Kingdom

The current software versions of the PCME QAL 360 dust measuring system
manufactured by ENVEA UK Ltd. are:

Sensor:	5.9
Control units:	
Interface module:	9.04
MultiController:	9.04
ProController:	2.26

Statement issued by TÜV Rheinland Energy GmbH dated 4 December 2019

Publication in the German Federal Gazette: BAnz AT 31.07.2020 B10, chapter II
5th notification, UBA announcement of 27 May 2020

**5 Notification as regards Federal Environment Agency (UBA) notices
of 22 February 2017 (BAnz AT 15.03.2017 B6, chapter II number 2.2) and
of 24 February 2020 (BAnz AT 24.03.2020 B7, chapter IV 42nd notification)**

The PCME QAL 360 measuring system for total dust manufactured by ENVEA UK
Ltd. can optionally be operated with the netController control unit.

The netController software version is: 1.04

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020

Publication in the German Federal Gazette: BAnz AT 03.05.2021 B9, chapter III
25th notification, UBA announcement dated 31 March 2021:

25 Notification as regards Federal Environment Agency (UBA) notices of 22 February 2017 (BAnz AT 15.03.2017 B6, chapter I number 2.2) and of 27 May 2020 (BAnz AT 31.07.2020 B10, chapter II 5th notification)

The current software versions of the PCME QAL 360 dust measuring system manufactured by ENVEA UK Ltd. are:

Sensor:	6.0
Control units:	
Interface module:	9.04
MultiController:	9.04
ProController:	2.26

Statement issued by TÜV Rheinland Energy GmbH dated 7 August 2020

Certified product

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

The QAL 360 is a particle monitor which uses the scattered light principle (backward scattering). Measurements are made contact-free, continuous and without sampling in the flue gas flow above dew point. The red light of a laser diode beams through the measurement channel and illuminates dust particles in the measurement volume. The particles present in the measurement volume scatter this light. A photodiode then detects the backscattered light. The proportion of the measured intensity of the scattered light to the intensity of the emitted light corresponds to the particle density in the measuring volume.

The basic version of the QAL 360 measuring system only consists of the measurement head itself, a flange connection including a purge air connection and the purge air unit. The complete measurement technology is located inside the sensor head. The measuring system is operated via the keypad on the sensor head or via an external PC connected via USB. The measured value is displayed via the measuring head or alternatively via the optional control unit.

The measuring system comprises the following main components:

- Measurement head QAL 360
- Duct flange for the measurement head
- Blower purge
- Reference filter
- Manual
- OPTIONAL: Control unit (ProController, MultiController or interface module) for easier parametrisation and visualisation of the measurement data for performing AST and QAL3.

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.

Document history

Certification of the PCME QAL 360 measuring system is based on the documents listed below and the regular, continuous surveillance of the manufacturer's quality management system:

Initial certification according to EN 15267

Certificate no. 0000053808_00: 25 April 2017
Expiry date of the certificate: 14 March 2022
Test report: 936/21230922/A of 10 June 2016
TÜV Rheinland Energy GmbH
Publication: BAnz AT 15.03.2017 B6, chapter I number 2.2
UBA announcement dated 22 February 2017

Notifications according to EN 15267

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017
Publication: BAnz AT 26.03.2018 B8, chapter V notification 32
UBA announcement dated 21 February 2018
(Software updates)

Statement issued by TÜV Rheinland Energy GmbH dated 02 October 2018
Publication: BAnz AT 26.03.2019 B7, chapter IV notification 50
UBA announcement dated 27 February 2019
(Software updates)

Statement issued by TÜV Rheinland Energy GmbH dated 04 December 2019
Publication: BAnz AT 24.03.2020 B7, chapter IV notification 42
UBA announcement dated 24 February 2020
(Various changes)

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020
Publication: BAnz AT 31.07.2020 B10, chapter II notification 5
UBA announcement of 27 May 2020
(Design and software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 07 August 2020
Publication: BAnz AT 03.05.2021 B9, chapter III notification 25
UBA announcement dated 31 March 2021
(Software updates)

Renewal of the certificate

Certificate no. 0000053808_01: 02 March 2022
Expiry date of the certificate: 14 March 2027

Calculation of overall uncertainty according to EN 14181 and EN 15267-3

Measuring system

Manufacturer	PCME Ltd.
AMS designation	QAL 360
Serial number of units under test	54244 / 54245 / 52979 / 52916
Measuring principle	Lightscatter (Backscatter)

Test report

Test laboratory	936/21230922/A
Date of report	TÜV Rheinland
	2016-06-10

Measured component

Certification range	Dust	0 - 7.5 mg/m ³
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Calculation of the combined standard uncertainty

Tested parameter

			u^2
Standard deviation from paired measurements under field conditions *	u_D	0.066 mg/m ³	0.004 (mg/m ³) ²
Lack of fit	u_{lof}	0.012 mg/m ³	0.000 (mg/m ³) ²
Zero drift from field test	$u_{d,z}$	-0.048 mg/m ³	0.002 (mg/m ³) ²
Span drift from field test	$u_{d,s}$	0.087 mg/m ³	0.008 (mg/m ³) ²
Influence of ambient temperature at span	u_t	0.058 mg/m ³	0.003 (mg/m ³) ²
Influence of supply voltage	u_v	0.015 mg/m ³	0.000 (mg/m ³) ²
Uncertainty of reference material at 70% of certification range	u_m	0.061 mg/m ³	0.004 (mg/m ³) ²

* The larger value is used :
"Repeatability standard deviation at set point" or
"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u_c)	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.15 mg/m ³
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.29 mg/m ³

Relative total expanded uncertainty

Requirement of 2010/75/EU	U in % of the ELV 5 mg/m³	5.8
Requirement of EN 15267-3	U in % of the ELV 5 mg/m³	30.0
	U in % of the ELV 5 mg/m³	22.5