

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000081154_00

Certified AMS: ASCO Model P150Q for dust

Manufacturer: Emerson Asia Pacific Private Limited
BLK4008 #04-17/22 ANG MO KIO Techplace 1
Singapore 569625

Test Institute: 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)
as well as EN 14181 (2014).

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 6 pages).



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000081154

Publication in the German Federal Gazette
(BAnz) of 20 March 2023

German Environment Agency
Dessau, 25 April 2023

This certificate will expire on:
19 March 2028

TÜV Rheinland Energy GmbH
Cologne, 24 April 2023



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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 the certificate D-PL-11120-02-00.

Test report:	936/21256609/A dated 12 September 2022
Initial certification:	20 March 2023
Expiry date:	19 March 2028
Publication:	BAnz AT 20.03.2023 B6, chapter I No. 1.1

Approved application

The tested AMS is suitable for use at plants according to Directive 2010/75/EC, chapter III (13th BImSchV:2021), Directive 2015/2193/EC (44th BImSchV:2021), TA-Luft:2021 and 27th BImSchV:2013. 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 12 month field test at a drying plant for the production of mineral floor covering.

The AMS is approved for an ambient temperature range of -20° 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 emission limit values relevant to the application.

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

Note:

The legal regulations mentioned correspond to the current state of legislation during certification. Each user should, if necessary, in consultation with the competent authority, ensure that this AMS meets the legal requirements for the intended use. In addition, it cannot be ruled out that legal regulations governing the use of a measuring device for emission monitoring may change during the lifetime of the certificate.

Basis of the certification

This certification is based on:

- Test report 936/21256609/A dated 12 September 2022 of 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 20.03.2023 B6, chapter I No. 1.1,
Announcement by UBA dated 21 February 2023:

AMS designation:

ASCO Model P150Q for dust

Manufacturer:

EMERSON ASIA PACIFIC PRIVATE LIMITED, Singapore

Field of application:

For plants requiring according to TA Luft and 13. BImSchV as well as plants according to 27. and 44. BImSchV.

Measuring ranges during the performance test:

Component	Certification range	Supplementary measurement ranges		Unit
dust	0 - 1,000	0 - 10,000	0 - 100,000	pA

The measuring range 0 to 1,000 pA complies in the fieldtest app. 0 to 15 mg/m³.

Software version:

V1.4

Restrictions:

1. The measuring system can only be used at plants with constant waste gas velocity. For a waste gas velocity of 10 m/s, the permissible deviation is $\pm 10\%$. For other velocities, an estimation of the uncertainty contribution to the total uncertainty shall be made in advance.
2. The measuring system must not be operated behind electrostatic precipitators.
3. The measuring system may only be used in waste gases that are not saturated with water vapour.
4. The requirement of EN 15267-3 for the correlation coefficient R^2 of the calibration function has not been fulfilled.

Notes:

1. The maintenance interval is six months.
2. The dust concentration is measured in the moist waste gas under operating conditions.
3. The measuring system can monitor limit values ≥ 10 mg/m³.
4. The uncertainty contributions of the interference effects of waste gas velocity and waste gas humidity were not taken into account in the determination of the total uncertainty within the scope of the performance test. These must be determined on site for the respective installation.

Test report:

TÜV Rheinland Energy GmbH, Cologne
Report No.: 936/21256609/A dated 12 September 2022

Certified product

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

The ASCO Model P150Q measuring device from Emerson Asia Pacific Private Limited uses TRIBO.dsp technology. TRIBO.dsp technology processes both the DC signal generated by direct contact and charge transfer from a particle to the probe rod and the AC signal generated by a particle passing close to the probe rod. By using the different signal processing techniques (AC/DC) and by using high quality electronics, this measurement system also meets the high requirements of quantitative dust emission measurement technology. The measurement technology combines the two measurement principles DC (direct charge transfer, triboelectric) and AC (induction electrostatic signal, electrodynamic) for improved accuracy, reliability and repeatability and is characterized by high sensitivity and great flexibility.

The certified ASCO Model P150Q measurement system consists of:

- the electronic control unit with the relevant software
- the probe rod
- the connecting cable between the probe and the electronic unit.

For the annual functional test (AST) according to the valid European directives, the following equipment is additionally required:

- Test equipment Model 2902 "Field Test Unit" including a zero tube for testing the measuring equipment.

Within the scope of the suitability test, two different measuring probes were used. One version had an active probe rod length of approx. 18.5 cm while the second version for the field test had an active probe length of approx. 45 cm.

The measuring probes are adaptable to different measuring openings in the field due to the type of flanges.

The ASCO Model P150Q measuring device performs automated zero and reference point checks once a day. If the average value is outside the permissible limits over the duration of the test, the device displays a status signal.

General notes

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 manufacture of 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 certification mark may be applied to the product or used in advertising materials for the certified product.

This document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must not be employed anymore.

The relevant version of this certificate and its expiration is also accessible on the internet: qal1.de.

History of documents

Certification of ASCO Model P150Q is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Initial certification according to EN 15267

Certificate No. 0000081154_00: 25 April 2023
Expiry date of the certificate: 19 March 2028
Test report 936/21256609/A dated 12 September 2022
TÜV Rheinland Energy GmbH, Cologne
Publication: BANz AT 20.03.2023 B6, chapter I No. 1.1
Announcement by UBA dated 21 February 2023

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

Measuring system

Manufacturer	Emerson Asia Pacific Ltd.
AMS designation	ASCO Model P150Q
Serial number of units under test	160175-A / 160175-B
Measuring principle	triboelectric

Test report

Test laboratory	936/21256609/A
Date of report	TÜV Rheinland
	2022-09-12

Measured component

Certification range	Dust	0 - 15 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	0.102 mg/m ³	0.010	(mg/m ³) ²
Lack of fit	u_{lof}	0.009 mg/m ³	0.000	(mg/m ³) ²
Zero drift from field test	$u_{d,z}$	0.043 mg/m ³	0.002	(mg/m ³) ²
Span drift from field test	$u_{d,s}$	-0.078 mg/m ³	0.006	(mg/m ³) ²
Influence of ambient temperature at span	u_t	0.049 mg/m ³	0.002	(mg/m ³) ²
Influence of supply voltage	u_v	0.007 mg/m ³	0.000	(mg/m ³) ²
Uncertainty of reference material at 70% of certification range	u_{rm}	0.121 mg/m ³	0.015	(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)	$u_c = \sqrt{\sum (u_{max, j})^2}$	0.19 mg/m ³
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.37 mg/m ³

Relative total expanded uncertainty

Requirement of 2010/75/EU	U in % of the ELV 10 mg/m³	3.7
Requirement of EN 15267-3	U in % of the ELV 10 mg/m³	30.0
	U in % of the ELV 10 mg/m³	22.5