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CONFIRMATION

of Product Conformity (QAL1)

Approved AMS:	N100 for SO_2
Manufacturer:	Teledyne API 9970 Carroll Canyon Road San Diego, CA, 92131 USA
Test Institute::	TÜV Rheinland Energy & Environment GmbH

This is to certify that the AMS has been tested according to the standards

VDI 4202-1 (2018), EN 14212 (2012), as well as EN 15267-1 (2009) and EN 15267-2 (2009).

The AMS underwent independent expert testing and was accepted.
This confirmation is valid up to the publication of the certificate,
but no longer than 6 months from the date of issue
(this document contains 4 pages).

This confirmation is valid until: 14 August 2024

TÜV Rheinland Energy & Environment GmbH
Cologne, 15 March 2024

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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.

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Test Report: EuL/21255654/C dated 28 August 2023

Expiry date: 14 August 2024

Approved application

The tested AMS is suitable for continuous ambient air monitoring of SO_2 (stationary operation).

The suitability of the AMS for these applications was assessed based on a laboratory test and a 3-month field test.

The AMS is approved for an ambient temperature range of 0 °C to 45 °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 measured values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the intended purpose.

Note

The legal regulations mentioned do not correspond to the current state of legislation in every case. 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 confirmation

This confirmation is based on:

- Test report EuL/21255654/C dated 28 August 2023
  issued by TÜV Rheinland Energy GmbH
- The ongoing surveillance of the product and the manufacturing process
- Expert testing and approval by an independent body

AMS designation:
N100 for SO_2

Manufacturer:
Teledyne API

Field of application:
For continuous ambient air monitoring of SO_2 (stationary operation)

Measuring ranges during performance testing:

Component	Certification range	Unit
SO_2-	0 – 1.000	µg/m³

Software version:
Rev. 1.11.1

Restrictions:
none

Notes:

1. The test report on the suitability test can be viewed on the Internet at www.qal1.de.
2. The measuring device is approved for an ambient temperature range of 0 - 45 °C.
3. The measuring system N100 can be equipped with a controlled pump (PID controlled) as well as with a non-controlled pump (HD Non-PID)
4. The N100 measuring system can be equipped with a standard Teflon particle filter with a pore size of 5 µm and a diameter of 47 mm as well as with a DFU filter cartridge with a pore size of 0.01 µm.

Test Institute: TÜV Rheinland Energy GmbH, Cologne
Report No.: EuL/21255654/C dated 28 August 2023

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Tested product

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

The immission measuring device N100 is a continuous sulfur dioxide analyzer. The measuring principle is based on UV fluorescence. The device was developed for continuous measurement of sulfur dioxide in ambient air.

The measurement method is based on the physical principle that fluorescence occurs when sulfur dioxide (SO_2) is excited to an excited state by UV light with wavelengths in the range of 190 nm - 230 nm (SO_2*).

The optical design of the measurement chamber optimizes the fluorescence reaction between SO_2 and UV light, ensuring that only the UV light produced by the decay of SO_2* to SO_2 is detected by the instrument's fluorescence detector.

The N100 Sulfur Dioxide Analyzer determines the concentration of sulfur dioxide (SO_2) in the sample air drawn into the instrument. In doing so, the measurement and also calibration gases must be supplied at atmospheric pressure.

UV radiation is generated by a low pressure zinc vapor lamp.

A reference detector converts UV light to a DC current that is used to measure the intensity of the UV excitation source. It is located directly opposite the UV lamp at the end of a narrow tubular light trap, and is thus directly in the path of the UV excitation light.

A window that is transparent to UV light forms an airtight seal to prevent ambient air from contaminating the measurement chamber. Due to the shape of the light trap, and because the detector only detects UV wavelengths, no further optical filtering is necessary.

Multiple focusing lenses and optical filters ensure that both detectors are exposed to the optimal amount of light at only the correct wavelength of UV. To ensure that the PMT detects only the light emitted by the decaying SO_2*, the path of the UV excitation light and the field of view of the PMT are perpendicular to each other. Furthermore, the inner surfaces of the measuring chamber are coated with a layer of black Teflon, which absorbs stray light.

The N100 measuring device has a particle filter directly behind the sample gas inlet. The particle filter is located on a flap secured with two screws on the back of the measuring device. The manufacturer offers the measuring device with two different filter types.

Alternatively, it is possible to equip the N100 measuring device with a DFU filter cartridge with a pore size of 0.01 µm (a so-called long-life filter). The manufacturer specifies a replacement interval of up to 6 months for this filter. The replacement interval of the particle filter depends, of course, on the dust load at the installation site and must be determined individually for each measuring point.