

CONFIRMATION

of Product Conformity (QAL1)

Approved AMS: Model 6888A for O₂

Manufacturer: Emerson Process Management Rosemount Analytical Inc.
6565P Davis Industrial Parkway
Solon, OH 44139
USA

Test Institute: TÜV Rheinland Energie und Umwelt GmbH

**This is to certify that the AMS has been tested
and found to comply with:**

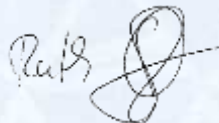
**EN 15267-1: 2009, EN 15267-2: 2009, EN 15267-3: 2007
and EN 14181: 2004**

The approval of the measuring equipment subject to the above mentioned conditions
was authorized by the German relevant body.

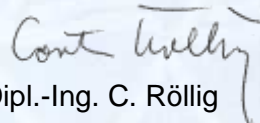
This confirmation is valid up to the official announcement in the Federal Gazette,
but no longer than 6 months from the date of issue
(see also the following pages).

The confirmation is valid until: 14 July 2014

TÜV Rheinland Energie und Umwelt GmbH
Cologne, 15 January 2014



i. A. Dipl.-Ing. R. Steinhagen



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51105 Cologne

Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

Confirmation:
15 January 2014

Test report: 936/21219899/C of 30 August 2013
First certification: 23 July 2013
Expiry date: 14 July 2014

Tested application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III, at waste incineration plants according to Directive 2010/75/EU, chapter IV and other plants requiring official approval. The tested ranges have been chosen with respect to the wide application range of the AMS.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a eleven-month field test at a municipal waste incinerator.

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

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

Basis of the confirmation

This certification is based on:

- test report 936/21219899/C of 30 August 2013 of TÜV Rheinland Energie und Umwelt GmbH
- notice of suitability as given by the competent body of 23 July 2013
- the ongoing surveillance of the product and the manufacturing process
- expert testing and approved by an independent body

Confirmation:
15 January 2014

AMS designation:

Model 6888A for O₂

Manufacturer:

Emerson Process Management Rosemount Analytical Inc, Solon, USA

Field of application:

For measurements at plants requiring official approval (Directive 2010/75/EU on industrial emissions, chapter III and IV)

Measuring range during the performance test:

Component	Certification range	Unit
O ₂	0 - 25	Vol.-%

Software version:

V 1.048

Restrictions:

None

Notes:

1. The maintenance interval is four months.
2. The AMS is available in two configurations:
Model 6888A-1OXY-4-1-5DR (the raw signal is processed by the external control unit 6888Xi) and Model 6888A-1OXY-4-1-1HT (the raw signal is processed directly at the probe head).
3. Supplementary testing (extension of the maintenance interval) as regards Federal Environmental Agency notice of 03 July 2013 (BAnz AT 23 July 2013 B4, chapter II No. 1.1).

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21219899/C of 30 August 2013

Confirmation:
15 January 2014

Tested product

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

The measuring system model 6888A is a zirconium dioxide probe for the measurement of oxygen with a measurement range of 0 – 25 Vol.-%.

The continuously heated sensor is fitted to the tip of the probe so that it is exposed to the flue gas in its in-situ position. It generates a millivolt signal between the measuring and the reference electrodes. This current is caused by a potential difference which is a result of different oxygen particle pressures. The measuring electrode is exposed to the flue or exhaust gas, while the reference electrode is surrounded by span gas (usually ambient or instrument air with 20.95 Vol.-% O₂).

Due to its direct position in the exhaust gas, the ZrO₂ measuring cell measures the oxygen concentration as a percentage of the overall volume, including the steam concentration.

The measuring system model 6888A comprises a measuring probe with probe head as well as Xi electronics.

The measuring system is available in two configurations: model 6888A-1OXY-4-1-5DR; and model 6888A-1OXY-4-1-1HT.

There are no processing electronics in the probe head in variant 6888A-1OXY-4-1-5DR. The raw signals from the measuring cell are transmitted via a 7-core special cable from the probe housing to the Xi electronics, where they are then processed.

Furthermore, the Xi electronics provide the heating element of the probe with electricity and regulates the temperature of the ZrO₂ measuring cell.

In variant 6888A-1OXY-4-1-1HT the signal-processing electronics and the electricity supply are located directly in the probe head on the probe. The raw signal is transformed into a linear 4-20 mA analogue signal in the probe housing and the temperature of the probe heating is regulated.

Both system variants are controlled by Xi electronics. In the case of variant 6888A-1OXY-4-1-5DR the electronics are fitted with a circuit board for signal processing and temperature control. This circuit board is not present in variant 6888A-1OXY-4-1-1HT which has probe-internal processing electronics.

Regardless of the variant, the probes are available in various configurations. Probes are available in lengths between 0.457 m and 5.49 m. Probes of 0.91 m length were used in the performance test.

A filter is fitted on the probe head before the ZrO₂ measuring cell. Depending on the temperature of the exhaust gas to be measured, filters made from sintered metal (up to 500 °C), ceramic (up to 825 °C) or Hastelloy (up to 700 °C) are available. The probes tested contained sintered metal filters.

The measuring system has a 4 – 20 mA analogue output for measurement values in both variants.

Variant 6888A-1OXY-4-1-5DR contains one relay output for error or warning messages, variant 6888A-1OXY-4-1-1HT with probe-internal electronics contains two.

Error and warning messages are also shown on the Xi electronics display and can be identified by activating the diagnosis switch.

Communication with the measuring signal converter electronics in the probe head and the Xi electronics is performed using the Xi electronics control unit. Wireless access is however also possible via HART (highway addressable remote transducer) using a THUM adapter.

Adjustment is carried out via a calibration gas input which is located between the probe tube and the probe housing. The calibration gas is directed to the sensor on the probe tip via a tube within the probe with a volume flow of 2.5 l/min. In the event of repeated calibration gas injection it is important to reproduce the volume flow of 2.5 l/min as exactly as possible, otherwise measured value deviations can occur.

The reference gas input is located directly next to the calibration gas input. The reference gas flows from there via an extra gas line to the reference gas side of the sensor. The reference gas consists predominantly of instrument air (20.95 Vol.-% O₂). The sensor must be permanently supplied with reference air with approx. 1 l/m when used at the exhaust gas duct.