

CERTIFICATE

TUV Approved

Certificate number: 0000072196_TdC_1

Manufacturer:	MRU GmbH Fuchshalde 8 74172 Neckarsulm Germany
Product:	MGAprime Q
Components:	CO, NO, NO ₂ , CO ₂ , O ₂
Test Report:	936/21245785/A dated 2 March 2020
Valid until:	2025-03-31

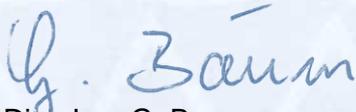
The portable measuring equipment
was tested
in accordance with
the European regulation EN 15267 part 1, 2 and 4.



Tested AMS
Regular
Surveillance

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ID 0000072196

Cologne, 2020-03-20


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Test institute accredited to EN ISO/IEC 17025:2005 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.

Overview

The performance test of the MGAprime Q portable emission measuring system for the component CO, NO, NO₂, CO₂, O₂ was performed in accordance with the European regulation EN 15267 part 1, 2 and 4.

The test was carried out for the following component and ranges:

Component	Certification range	Supplementary range	Unit
CO	0 - 220	0 - 3.750	mg/m ³
NO	0 - 270	0 - 2.680	mg/m ³
NO ₂	0 - 308	0 - 1.025	mg/m ³
CO ₂	0 - 20	-	Vol.-%
O ₂	0 - 25	-	Vol.-%

To operate the P-AMS, it is necessary to inject 10% phosphoric acid into the cooler of the system using the pumps provided by the manufacturer.

In conformity with the applicable standards, the following performance criteria were assessed in the laboratory:

- Check of general requirements,
- CE labelling,
- Security,
- Output ranges and zero-point,
- Additional data outputs,
- Display of operational status signals,
- Degrees of protection provided by enclosures,
- Determination of response time,
- Cross sensitivity,
- Lack-of-fit,
- Repeatability standard deviation at zero and at span point,
- Influence of ambient temperature,
- Influence of voltage variation,
- Influence of sample gas flow,
- Influence of vibration.

The field test was carried out in accordance with DIN EN 15267-4 with the exhaust gas from five different plants (2 waste combustion plants, biomass-heating-plant, coal-fired power plant and sewage sludge combustion plant) with two complete, identical measuring systems.

Within the field test the following criterions have been tested:

- Functional test of the instruments,
- Calibration ability according to EN 14181,
- Determination of response time,
- Short-term zero and span drift,
- Reproducibility,
- Verification of equivalence with the SRM
- Determination of the measurement uncertainty

Minimum requirements of EN 15267-4 have been fulfilled during performance testing and assessment.

The manufacturing process of the MGAprime Q of MRU GmbH is controlled within the auditing procedure of EN 15267-2. For the validity of the certificate an annual audit of the production process is required.

Field of Application

The MGAprime Q is a portable measuring system suitable for use at applications according to the certified components and measuring ranges for periodic measurements of emissions from stationary source. The tested ranges have been chosen with respect to the wide application range of the portable AMS.

The P-AMS is approved for the ambient air temperature range of +5°C to +40°C.

Any potential user should ensure, in consultation with the manufacturer, that this P-AMS is suitable for the applications at which it will be used.

Description of the AMS tested

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

The P-AMS under test comprises the following components:

- HPI sample probe and heated sampling line
- the MGAprime-Q analyser itself,
- the additional APE unit for injecting 10%-phosphoric acid into the cooler

The gas sampling probe has a heated probe handle incl. a dust filter and allows connection to a heated sampling line. The MGAprime-Q controls the heaters, the probe handle and the sampling probe.

The measuring system possesses two different kinds of sensors:

- a paramagnetic sensor which determines O₂ (oxygen),
- a non-dispersive infrared analyser. This measuring principle allows the measurement of CO (carbon monoxide), CO₂ (carbon dioxide), NO (nitrogen monoxide) and NO₂ (nitrogen dioxide).

The measuring system is operated via a touch-sensitive touch display. The outer casing of the instrument is a compact and robust metal housing with shock-absorbing plastic corners, housed in a water-repellent bag. This bag is designed to be used for operation of the instrument. In total, the measuring device has the protection class IP 42.

All electrical and pneumatic connections are located on the front of the unit. Phosphoric acid (10%) is injected into the measuring instrument by means of the APE acid dosing unit. Correct measurement requires the injection of phosphoric acid (10%).

- The injection ensures constant conditions in the gas cooler, regardless of whether dry or wet sample gas is fed.
- The use of phosphoric acid reduces losses of measuring components on the wet surfaces of the gas cooler.

Two pumps ensure injection; they inject 24 ml of phosphoric acid per hour during measurement operation.

The tested software version is
V1.001.029