CERTIFICATION OF CALIBRATION

4533

Date Of Calibration: 31-Oct-2019

Certificate Number: G505388_1/24369

Issued by: QED Environmental Systems Ltd.

Customer: **Socotec UK Limited**
ESG House Bretby Business Park Ashby Road
Burton upon Trent Staffordshire DE15 0YZ UNITED KINGDOM

Description: Gas Analyser

Model: GA5000

Serial Number: G505388

UKAS Accredited results:

Results after adjustment :

Methane (CH_4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.41
15.0	15.0	0.64
50.0	49.4	0.94

Carbon Dioxide (CO_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.43
15.0	15.0	0.70
50.0	50.2	1.1

Oxygen (O_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.1	21.2	0.31

The inwards assessment was carried out 22-Oct-2019.
The maximum adjustment is larger than the inwards assessment uncertainty.

All concentrations are molar.

CH_4, CO_2 readings recorded at : 31.2 °C ± 2.5 °C

O2 readings recorded at : 22.0 °C ± 2.5 °C

Barometric Pressure : 1010 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance:105 IGC Instance:105

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QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

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The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

As received gas readings, as recorded on 22-Oct-2019 :

Methane (CH_4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.41
15.0	14.8	0.64
50.0	49.2	0.94

Carbon Dioxide (CO_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.1	0.43
15.0	15.1	0.70
50.0	49.7	1.1

Oxygen (O_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.1	20.7	0.31

All concentrations are molar.

As received gas readings recorded at : 23.5 °C ± 2.5 °C

As received barometric pressure recorded at : 1013.51 mbar ± 4 mbar

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	**Instrument Reading**
1010	1010

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	519	519
H_2S	262	262

Internal Flow	
Applied (l/hr)	**Instrument Reading (l/hr)**
5.0	5.1
10.0	9.8

Date of Issue : 01-Nov-2019 **Approved by Signatory** Laura McBride

Laboratory Inspection

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 105 IGC Instance: 105

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SERVICE REPORT

Issued by: QED Environmental Systems Ltd.

17025	5	50	65	7,384	340	25
Our ISO accreditation for our customised auto-calibration facilities	Number of days we aim to complete your service within	Number of checks instruments are subject to when serviced	Number of countries from which we service instruments /accessories each year	Number of calibrations completed in last 12 months	Minimum number of service instruments we process each month	Cost (in £) of fully insured analyser collection for our UK customers

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SERVICE REPORT

Issued by: QED Environmental Systems Ltd.

Customer Name: Socotec UK Limited

Model:	GA5000	**Date of Service:**	01-Nov-2019
Part Number:	GA5KB0C0-101	**Service Engineer:**	Mustafa Ghalaboun
Serial Number:	G505388	**Calibration Engineer:**	Suk Balrey

Verification / Approved By: Laura McBride **Signature:**

Reason for Return (inc. Customer Comments):

Returned for full service and calibration

Service Comments/Feedback:

Thank you for returning your gas analyser to the Geotech Service Centre for full service and calibration. We are pleased to inform you that the analyser was received and fully assessed by one of our experienced Service Engineers and no significant faults or issues were observed during the assessment. Our extensive service was carried out, and any necessary components replaced. The analyser has successfully passed all of our rigorous testing and quality checks and has been calibrated using our bespoke, state of the art calibration facility. For further information about how to get the best use from your instrument please visit our YouTube channel http://www.youtube.com/GeotechTV and on our Website http://www.geotechuk.com

We are pleased to inform you that we have installed the latest version of firmware on your gas analyser, so you will be able to benefit from the latest features and improvements.

If you require any further assistance with your instrument please email our Technical Support Team at technical@geotech.co.uk or call us on +44 1926 338111 (Monday to Thursday 08.30 - 17.00 & Friday 08.30 - 15.30) UK time zone.

Next Service Due: 01-May-2020

17025	5	50	65	7,384	340	25
Our ISO accreditation for our customised auto-calibration facilities	Number of days we aim to complete your service within	Number of checks instruments are subject to when serviced	Number of countries from which we service instruments /accessories each year	Number of calibrations completed in last 12 months	Minimum number of service instruments we process each month	Cost (in £) of fully insured analyser collection for our UK customers

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