PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

J2KN^{pro}

Manufactured by:

ecom GmbH
Am Großen Teich 2
58640 Iserlohn

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Handheld Emissions Monitoring Systems (HEMS), Version 4 dated September 2018

Certification Ranges :

Component	Certification range	Supplementary range	Unit
CO	0 to 625	0 to 1,250	mg/m^3
NO	0 to 402	0 to 2,680	mg/m^3
NO_2	0 to 410	-	mg/m^3
SO_2	0 to 1,430	-	mg/m^3
O_2	0 to 21	-	Vol.-%
CO_2	0 to 20	0 to 12	Vol.-%

Project No.:	80025633
Certificate No:	Sira MC190351/01
Initial Certification:	09 December 2019
This Certificate issued:	16 July 2020
Renewal Date:	08 December 2024

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
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UKAS PRODUCT CERTIFICATION 0011

Form 1335
Issue 8

Certificate Contents

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

The measuring system shall only be employed at plants in which waste gas humidity does not persistently exceed 30 Vol.-%.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TUV Rheinland Energy GmbH Report no.: 936/21245514/A dated 30/10/2019

Product Certified

The measuring system consists of the following parts:

- Base unit with stainless steel peltier gas cooler and automatic condensate draining
- Radio remote controller
- Integrated Data printer
- Gas sampling probe with exchangeable probe pipe and sampling line

This certificate applies to all instruments fitted with software version V3.84 (serial number 11731) onwards.

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient temperature Range: +5°C to +40°C
Instrument IP rating: IP40

Results are expressed as error % of certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Warm up time						Clause 5.2.2
					60s	To be reported
Response time						Clause 5.2.3
CO (0 to 625 mg/m^3)					36s	<200s
CO (0 to 1,250 mg/m^3)					35s	<200s
NO (0 to 402 mg/m^3)					18s	<200s
NO (0 to 2,680 mg/m^3)					17s	<200s
O_2 (0 to 21 Vol.-%)					13s	<400s
O_2 (0 to 20 Vol.-%)					14s	<200s
CO_2 (0 to 12 Vol.-%)					16s	<200s
SO_2 (0 to 1,430 mg/m^3)					91s	<200s
NO_2 (0 to 410 mg/m^3)					38s	<200s
Repeatability standard deviation at zero point						Clause 5.2.4
CO	0.1					<±5.0%
NO	0.0					<±5.0%
O_2	0.0					<±0.4%
CO_2	0.1					<±5.0%
SO_2	0.0					<±5.0%
NO_2	0.3					<±5.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Repeatability standard deviation at span point						Clause 5.2.5
CO		0.6				<±5.0%
NO		0.5				<±5.0%
O_2	0.01					<±0.4% vol
CO_2	0.03					<±5.0%
SO_2		0.5				<±5.0%
NO_2		0.9				<±5.0%
Lack-of-fit						Clause 5.2.6
CO (0 to 625 mg/m^3)	0.35					<±5.0%
CO (0 to 1,250 mg/m^3)		0.96				<±5.0%
NO (0 to 402 mg/m^3)			-1.0			<±5.0%
NO (0 to 2,680 mg/m^3)		0.63				<±5.0%
O_2 (0 to 21 Vol.-%)	0.1					<±0.4%
O_2 (0 to 20 Vol.-%)			-1.05			<±0.4% vol
CO_2 (0 to 12 Vol.-%)		0.83				<±5.0%
SO_2 (0 to 1,430 mg/m^3)		-0.98				<±5.0%
NO_2 (0 to 410 mg/m^3)			1.71			<±5.0%
Influence of ambient temperature zero point						Clause 5.2.7
(+5°C to +40°C)						
CO				2.1		<±5.0%
NO				-3.0		<±5.0%
O_2	-0.01					<±0.8%
CO_2			1.7			<±5.0%
SO_2			0.1			<±5.0%
NO_2		0.5				<±5.0%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of ambient temperature reference point (+5°C to +40°C)						Clause 5.2.7
CO				-4.4		<±5.0%
NO				-4.9		<±5.0%
O_2	0.2					<±0.8%
CO_2				-3.5		<±5.0%
SO_2				-2.9		<±5.0%
NO_2				5.0		<±5.0%
Cross sensitivity at zero with intereferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						Clause 5.2.8
CO (0 to 625 mg/m^3)					-	<±5.0%
CO (0 to 1,250 mg/m^3)					-	<±5.0%
NO (0 to 402 mg/m^3)	0.46					<±5.0%
NO (0 to 2,680 mg/m^3)					-	<±5.0%
O_2 (0 to 21 Vol.-%)					-	<0.8%
CO_2 (0 to 12 Vol.-%)		0.65				<±5.0%
SO_2 (0 to 1,430 mg/m^3)					-	<±5.0%
NO_2 (0 to 410 mg/m^3)				-3.5		<±5.0%
Cross sensitivity at span with intereferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						Clause 5.2.8
CO (0 to 625 mg/m^3)				3.94		<±5.0%
CO (0 to 1,250 mg/m^3)				3.43		<±5.0%
NO (0 to 402 mg/m^3)				3.01		<±5.0%
NO (0 to 2,680 mg/m^3)	0.42					<±5.0%
O_2 (0 to 21 Vol.-%)	0.27					<0.8%
CO_2 (0 to 12 Vol.-%)				4.00		<±5.0%
SO_2 (0 to 1,430 mg/m^3)				-4.26		<±5.0%
NO_2 (0 to 410 mg/m^3)				-4.85		<±5.0%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Zero drift (1 hour)						Clause 5.2.9
CO (0 to 625 mg/m^3)	0.4					<±3.0%
CO (0 to 1,250 mg/m^3)					-	<±3.0%
NO (0 to 402 mg/m^3)	0.0					<±3.0%
NO (0 to 2,680 mg/m^3)					-	<±3.0%
O_2 (0 to 21 Vol.-%)	0.02					<±0.3%
CO_2 (0 to 12 Vol.-%)	-0.1					<±3.0%
SO_2 (0 to 1,430 mg/m^3)	0.0					<±3.0%
NO_2 (0 to 410 mg/m^3)	0.0					<±3.0%
Span drift (1 hour)						Clause 5.2.9
CO (0 to 625 mg/m^3)			1.4			<±3.0%
CO (0 to 1,250 mg/m^3)					-	<±3.0%
NO (0 to 402 mg/m^3)			-1.9			<±3.0%
NO (0 to 2,680 mg/m^3)					-	<±3.0%
O_2 (0 to 21 Vol.-%)	0.08					<±0.3%
CO_2 (0 to 12 Vol.-%)		-0.8				<±3.0%
SO_2 (0 to 1,430 mg/m^3)			-1.3			<±3.0%
NO_2 (0 to 410 mg/m^3)				-2.8		<±3.0%

Note 1: The measuring system shall only be employed at plants in which waste gas humidity does not persistently exceed 30 Vol.-%
Note 2: The SO_2 measuring channel is suitable for water concentrations up to 20 Vol.-%
Note 3: The NO_2 measuring channel is suitable for SO_2 concentrations up to 600mg/m^3.

Description

The J2KNpro is a portable emissions and combustion analyser. The MCERTS certified version measures O_2, CO, NO, NO_2, SO_2 and CO_2 and it is certified as per ranges stated on the first page.

The J2KNpro is capable of measuring O_2, CO, NO, NO_2, SO_2, H_2S* by using electrochemical cells and CO_2, HC* and CO by using NDIR infrared technology.

The compact and robust ecom-J2KNpro portable emissions and combustion analyser series can be fitted with up to 6 electrochemical gas sensors thereof O_2, CO, NO, NO_2, SO_2, H_2S* and hydrocarbons* as well as a NDIR measuring bench capable to analyse up to 3 gas components.

The special product line dedicated to MCERTS consists of 3 variants – ranging from basic O_2, CO, NO equipment upon O_2, CO, NO and NO_2 package to high-end analyser with O_2, CO, NO, NO_2 and SO_2 - all of them being certified as per ranges stated in the pages before.

For professional gas sampling, each of the ecom-J2KNPro MCERTS package is fitted with a brushless gas pump, a Peltier gas cooler made out of stainless steel with automatic condensate draining and a special sampling NOx tubing to avoid washing-out effects of the water-soluble components NO_2 and SO_2.

The instruments operate on Li-Ion integrated batteries or can be powered using mains power. An in-built thermal quick-printer protocols measured and calculated values. Alternatively the values can be saved on SD card and transferred later on to a PC.

The wireless data face feature alternatively enables the reading of the values and their compilation in a clear report as PDF upon free downloadable App. The wireless detachable control module in handheld size remotely controls and operates all of the analyser functions and displays all of the measured and calculated values on the integral TFT colour display. The control module is fitted with magnets on the back for positioning on metal surfaces, thus meaning the user can work fully free-hand.

The communication between control and basic modules is performed via radio (868 MHz). The control module is powered by three batteries which are automatically recharged by simple re-docking of the module on the base.

Besides gas sensors, all necessary hardware and electronics the base module covers a specific display for continuous self-control of the most relevant operation processes and timely information to the user in the event of a deficiency. As well, it contains a magnetic valve for automatic, unattended long-term measurements which switches to fresh air aspiration in pre-programmed time intervals with subsequent zeroing of the gas sensors.

***H_2S and HC are not covered by the scope of this certification**

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. 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 system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'.

2. The design of the product certified is held and maintained by TUV Rheinland for certificate No. Sira MC190351/00

3. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.

3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.

4. This document remains the property of Sira and shall be returned when requested by the company.