



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

HQ40D portable meter
Probes: pH and conductivity

manufactured by:

Hach Lange GmbH

*Königsweg 10
D14163
Berlin
Germany*

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

**MCERTS Performance Standards for Portable Water Monitoring Equipment, Part 2:
online analysers, Version 2.1, dated August 2010**

Certification Ranges :

pH units	1 to 13
Conductivity	0.01 μ S/cm to 500 μ S/cm
Conductivity	0.01 μ S/cm to 200 mS/cm

Project No: 16W22393
Certificate No: Sira MC120213/01
Initial Certification: 01 November 2012
This Certificate Issued: 15 November 2017
Renewal Date: 31 October 2022

Joe Prince MSc MInst MC
Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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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

On the basis of the assessment this instrument is considered suitable for use on treated wastewater, untreated wastewater and receiving water applications.

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:

Sira Evaluation Report 16W22393 dated 16/10/2012

Product Certified

The measuring system consists of the following parts:

- HQ40D portable meter serial number 0711xxxxxxx software version 2.00.707, 1.30.71
- PHC101 pH probe
- CDC101 conductivity probe

This certificate applies to all instruments fitted with software versions and serial numbers above onwards

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: 0°C to +60°C

Sample Temperature Range: 3°C to +60°C

Unless otherwise stated the evaluation was carried out on the certification ranges:
pH 1 to 13, conductivity 0-200mS/cm

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Combined performance characteristic						
pH					0.23	0.3 pH units
Conductivity (0-500 µS/cm)					1.1	1.5% span
Conductivity (0-200 mS/cm)					1.2	1.5% span
Response time						
pH					<10s	Value to be reported
Conductivity (0-500 µS/cm)					<20s	
Conductivity (0-200 mS/cm)					<10s	
Mean error						
pH	-0.14					0.2 pH units
Conductivity (0-500 µS/cm)	0.28					1% span
Conductivity (0-200 mS/cm)		-0.94				1% span
Linearity						
pH	0.02					0.1 pH units
Conductivity (0-500 µS/cm)	-0.02					0.2% span
Conductivity (0-200 mS/cm)	0.06					0.2% span

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Repeatability						
pH	0.06					0.1 pH units
Conductivity (0-500 μ S/cm)	0.49					0.5% span
Conductivity (0-200 mS/cm)	-0.08					0.5% span
Sample matrix effects						
pH – alkaline error with 1M NaCl with 1M KCl		0.52 -0.72				-
Conductivity					n/a	-
Warm up drift						
pH & conductivity					< 2mins	< 2 mins
Length of battery operation						
pH & conductivity					Pass Tested over 24 hours	>12 hrs or 50 independent measurements
Low voltage test (6.75V to 4.1V)						
pH	0.00					0.05 pH units
Conductivity (0-200 mS/cm)	0.01					0.25% span
Ambient temperature (0°C to +60°C)						
pH	-0.01					0.1 pH units
Conductivity (0-200 mS/cm)	-0.20					0.5% span

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Relative humidity (95% RH)						
pH	-0.01					0.1 pH units
Conductivity (0-200 mS/cm)	0.05					0.5% span
Incident light						
pH, conductivity					n/a	
Sample temperature (3°C to +60°C)						
pH	0.10					0.1 pH units
Conductivity (0-200 mS/cm)	0.25				Note 1	0.5% span

Note 1: Test conducted without temperature compensation

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Field test results

The field trial was conducted > 3 months on a Water Treatment Works and for 2 weeks on a river.

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Error under field conditions						
pH					100%	>90% of errors ≤ Uc value
Conductivity (0-500 μS/cm)					88% Note 2	
Conductivity (0-200 mS/cm)					100%	
Response time (start)						
pH					<10s	To be reported
Conductivity					<20s	
Response time (end)						
pH					30s	To be reported
Conductivity					13s	
Maintenance	Routine maintenance only					To be reported

Note 2: The maximum error recorded was 14μS/cm. For 23 of the 25 paired readings an error <10μS/cm was recorded. The uncertainty of the reference measurement system contributed to the measurement error.

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Description:

HQ40D

The HQ40D portable meter is a 2 channel instrument for the determination of pH, conductivity, dissolved oxygen and ion concentration with interchangeable Intellical Digital electrodes. The HQ40D instrument works on a 'plug and play' basis showing the relevant options and settings for the Intellical probe that is connected. The instrument has reminder function for calibration and standard check; status display of electrode; data memory for 500 readings; sample and operator identification; backlit graphic display with automatic economy mode, date and time; power supply 115/250V; battery type 4 AA; protection class: IP 67 for instrument, outdoor electrodes and connections.

pH probe

IntelliCAL™ PHC101 is a digital, combination pH probe for measurements across the range pH2-14 with a non-refillable, gel-filled double junction reference and built-in temperature sensor. The standard laboratory version of this pH probe is available with a 3 or 1 meter cable while rugged forms with minimum 5m cable length are available suitable for direct measurements in a flow stream. IntelliCAL™ probes provide traceability in measurement history; alert users when the probe requires calibration; probes can be moved between different HQD instruments without the need to re-calibrate or re-enter measurement settings and the standard probes are waterproof up to 3 metres for 24 hours.

Conductivity Probe

IntelliCAL™ CDC401 is a digital, graphite, 4-pole conductivity probe for measurements in the range 0.01µS/cm-2mS/cm. The standard laboratory version is available with a 3 or 1 meter cable while rugged forms with minimum 5m cable length are available suitable for direct measurements in a flow stream. The CDC401 is ideal for measuring electrical conductivity, salinity, resistivity, or total dissolved solids (TDS) in wastewater, drinking water, or general water quality applications. IntelliCAL™ probes provide traceability in measurement history; alert users when the probe requires calibration; probes can be moved between different HQD instruments without the need to re-calibrate or re-enter measurement settings and the standard probes are waterproof up to 3 metres for 24 hours.

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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'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC120213/01
2. 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.

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