



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Hydrolab DS5, DS5X & MS5 Sonde with Field Rugged PDA unit

manufactured by:

Hach

*P.O. Box 389
Loveland, CO 80539*

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

**MCERTS Performance Standards for Continuous Water Monitoring Equipment, Part 2:
On-line analysers, Version 3.1, dated August 2010**

Certification Ranges :

pH	2 to 12
Temperature	0 to 45° C
Turbidity	0 to 500 NTU
Conductivity	0 to 1 mS/cm
Conductivity	0 to 100 mS/cm

Project No: 16W0366
Certificate No: Sira MC100180/00
Initial Certification: 09 November 2010
This Certificate Issued: 09 November 2010
Renewal Date: 08 November 2015

Technical Director

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:

Environment Agency, Warrington Report TR-07 V2, dated October 2010
Environment Agency, Warrington Report TR-06 V1, dated October 2010

Product Certified

The measuring system consists of the following parts:

- Hydrolab Series 5 sonde
 - MiniSonde 5
 - DataSonde 5
 - DataSonde 5X
- Connecting underwater cable of varying lengths
- Hach Field Rugged PDA (Trimble RECON 400X Series)

This certificate applies to all instruments fitted with software version 1.32 (serial number 5432 onwards)

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -2°C to +30°C

Please note, pH stated in pH units, conductivity stated as % span, temperature stated as °C, turbidity stated as % span.

Unless otherwise stated the evaluation was carried out on the certification range pH 2 to 12, conductivity 0 to 100 mS/cm, temperature 0 to 45° C, turbidity 0 to 500 NTU.

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Combined performance characteristic						
pH	0.19					0.3
Conductivity	0.42					1.5
Temperature	0.26					0.5
Turbidity				2.5		2.5
Response time						
pH					9.5s	Value to be reported
Conductivity					9.2s	
Temperature					6.5s	
Turbidity					5.5s	
Mean error						
pH	0.07					0.2
Conductivity		0.73				1.0
Conductivity (0 to 1 mS/cm)		0.98				1.0
Temperature	0.18					0.3
Turbidity	0.37					2.0
Linearity						
pH	0.03					0.1
Conductivity	0.38					0.2
Conductivity (0 to 1 mS/cm)	0.14					0.2
Temperature	0.06					0.2
Turbidity	0.32					1.0

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Repeatability						
pH	0.05					0.1
Conductivity	0.13					0.2
Conductivity (0 to 1 mS/cm)	0.31					0.2
Temperature	0.06					0.2
Turbidity	0.34					1.0
Sample matrix effects					Note 1	
pH, conductivity, temperature					-	-
Turbidity	0.25					1.0
Warm up drift					Note 2	
pH, conductivity, temperature, turbidity					<2mins	<2mins
Length of battery operation						
pH, conductivity, temperature, turbidity					Tested over 24 hours with readings logged every 30 minutes	Supplementary data
Supply Voltage					207V to 245 V 105V to 121V	
pH	0.00					0.05
Conductivity	0.00					0.25
Temperature	0.01					0.2
Turbidity	0.02					0.5
Ambient temperature					-2°C to +30°C	
pH	0.01					0.1
Conductivity	0.03					0.5
Temperature	0.1					1.0
Turbidity	0.47					0.2

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Relative humidity					95% RH	
pH	-0.04					0.1
Conductivity	0.00					0.5
Temperature	0.14					0.2
Turbidity	-0.19					1.0
Incident light					Note 3	
Turbidity	0.13					0.5
Sample temperature						
pH	0.1				+5 to +45°C	0.1
Conductivity	0.4				+5 to +45°C	0.5
Temperature					-	n/a
Turbidity			1.92		+5 to +45°C	0.5
Sample flow rate					Note 4	

Note 1 –The sample matrix effects test was deemed not applicable for the pH, conductivity, or temperature sensors by the certification committee.

Note 2 – Warm up drift has been reported in replacement of warm up time

Note 3 – The incident light test is not applicable for the, pH, conductivity, or temperature sensors.

Note 4 – Sample flow test has not yet been conducted on the instrument, and has not been included in the combined performance characteristic

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Field test results

The field trial was conducted > 3 months continual operation on a river monitoring application.

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Error under field conditions						
pH					93.1%	>90% of errors ≤ Uc value
Conductivity					100%	
Temperature					96.2%	
Turbidity					96%	
Response time (start)					Note 5	To be reported
pH					15.8s	
Conductivity					5.8s	
Temperature					8.2s	
Turbidity					8.7s	
Response time (end)					Note 5	To be reported
pH					22s	
Conductivity					9.2s	
Temperature					3.5s	
Turbidity					10s	
Maintenance						To be reported
pH	Electrolyte replaced during field trial					
Conductivity, temperature & turbidity	Routine maintenance only					

Note 5 – Response time was recorded using a stopwatch at the beginning of the field trial, and with a data logger at the end of the field trial.

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Description:

The Hydrolab Series 5 Multi-parameter sondes are designed for the in-situ measurement of discrete parameters in a concurrent way.

The instruments are designed to operate as standalone instruments through the use of on-board logging and memory OR as survey instruments for observing profile data of water columns or for taking spot measurements with the use of a Field Rugged PDA.

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 MC100180/00
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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