



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

YSI Professional Plus Portable Multiparameter Water Quality Meter

manufactured by:

YSI Incorporated
1700 / 1725 Brannum Lane
Yellow Springs
Ohio, 45387
USA

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, Version 2.1, dated August 2010

Certification Ranges :

Dissolved Oxygen (polarographic)	0 to 200% saturation
pH	2 to 12
Temperature	0 to 45°C
Conductivity	0 to 1 mS/cm
Conductivity	0 to 50 mS/cm

Project No: 16W0397
Certificate No: Sira MC100179/00
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

12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK, DA1 4AL
Tel: 01322 520500 Fax: 01322 520501

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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-04 V2, dated September 2010
Environment Agency, Warrington Report TR-05 V1, dated September 2010

Product Certified

The MCERTS measuring system consists of the following parts:

- Professional plus Instrument 6050000 (includes Data Manager software, the ProComm II communications saddle and USB cable)
- Four cable options: single, single with conductivity, dual parameter & Quatro, up to 30m.

Note: All cables include temperature; cables over 1 metre include cable management kit; cables with conductivity include sensor (no need to order conductivity sensor).

- Additional sensors 605203 Polarographic Dissolved Oxygen and 605101 pH (ISE)
- Optional flowcell, carry case and tripod accessories available.

This certificate applies to all instruments fitted with Pro Plus code Version 3.4 onwards, and Datamanager desktop software 1.1.13 onwards (serial number 07J onwards).

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -2°C to +45°C

Please note, Dissolved Oxygen (DO) stated as % reading, pH stated in pH units, conductivity stated as % span, and temperature stated as °C.

Unless otherwise stated the evaluation was carried out on the certification range Dissolved Oxygen (DO) 0 to 200% saturation, pH 2 to 12, temperature 0 to 45°C, Conductivity 0 to 50 mS/cm.

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Combined performance characteristic						
DO				4.21		6.0
pH	0.13					0.3
Conductivity			1.33			1.5
Temperature	0.22					0.5
Response time						
DO					19s	Value to be reported
pH					<5s	
Conductivity					10s	
Conductivity (0 to 1 mS/cm)					10s	
Temperature					10s	
Mean error						
DO				2.9	Note 1	5.0
pH	0.07					0.2
Conductivity		0.84				1.0
Conductivity (0 to 1 mS/cm)	0.01					1.0
Temperature	0.10					0.3

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Linearity					Note 1	
DO	0.3					
pH	0.03					
Conductivity		0.74				
Conductivity (0 to 1 mS/cm)	0.00					
Temperature	0.11					0.2
Repeatability					Note 1	
DO	0.2					
pH	0.03					
Conductivity	0.14					
Conductivity (0 to 1 mS/cm)	0.01					
Temperature	0.06					0.2
Sample matrix effects					Note 2	
pH, Conductivity, temperature						
Salinity compensation for DO						
DO		0.85				2.5
Warm up drift					<2mins	<2mins
DO, pH, Conductivity, Temperature						
Length of battery operation					Tested over 24 hours	>12 hours / 50 independent measurements
DO, pH, Conductivity, Temperature						
Low voltage					5V to 1.6V	
DO	-0.2					
pH	0.02					
Conductivity	0.00					
Temperature	0.00					

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Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Ambient temperature					-2°C to +45°C	
DO	0.05					2.5
pH	0.04					0.1
Conductivity	0.04					0.5
Temperature	0.02					0.2
Relative humidity					95% relative humidity	
DO	0.43					2.5
pH	0.04					0.1
Conductivity	0.01					0.5
Temperature	0.01					0.2
Incident light						
DO, pH, Conductivity, Temperature					Note 3	
Sample temperature						
DO			2.0		+5°C to +45°C	2.5
pH	0.01				+5°C to +30°C	0.1
Conductivity	0.13				+5°C to +30°C	0.5
Temperature					-	n/a
Robustness					Not tested	Optional test

Note 1 – The result for DO is based on data obtained from test point 2 (50% DO) to test point 5 (200% DO). Data from test point 1 (10% DO) was not used in these calculations. A mean error of ~300% was recorded at test point 1.

Note 2 –The sample matrix effects test was deemed not applicable for the pH, conductivity, or temperature sensors by the certification committee.

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

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Field test results

The field trial was conducted > 3 months on a river monitoring application, where over 120 measurements were taken.

Test	Results				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Error under field conditions						
DO					100%	>90% of errors ≤ Uc value
pH					96.9%	
Conductivity					100%	
Temperature					100%	
Response time (start)					Note 4	To be reported
DO					19.8s	
pH					10s	
Conductivity					5.8s	
Temperature					10s	
Response time (end)					Note 4	To be reported
DO					22.2s	
pH					13.2s	
Conductivity					5.5s	
Temperature					4.8s	
Maintenance	Routine maintenance only					To be reported

Note 4 – The response time was recorded using a stopwatch at the beginning of the field trial, and was recorded using a data logger at the end of the field trial

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Description:

The Professional Plus series is a family of rugged multiparameter handheld instruments used to measure water quality in a variety of different applications. The Professional Plus series is available with four different cables options (single parameter, single parameter with conductivity, dual parameter and Quatro) with the ability to measure up to eleven water quality parameters simultaneously.

When used with the Quatro cable option, the Professional Plus meter is a complete sampling and monitoring water quality unit providing continuous data from a compact system measuring Temperature, Conductivity, pH and Dissolved Oxygen (%sat and mg/l). Other parameters include Barometric Pressure, Specific Conductance, Total Dissolved Solids, Resistivity, Salinity plus one of Redox, Ammonium, Nitrate or Chloride.

Working in fresh, polluted, brackish or seawater, the YSI Professional Plus is an IP67 meter with cable lengths up to 30m.

The Professional Plus is designed for either direct in-situ measurement using the field cable, sensors and protective guard or via flowcell for groundwater applications.

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 MC100179/00
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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