



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

ABB AX 400 pH Measurement System

manufactured by:

ABB Ltd
Oldends Lane
Stonehouse
Gloucestershire
GL10 3TA

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: online analysers, Version 3.1 dated August 2010**

Certification Ranges :

pH units 0 to 12.5

Project No: 16W22570/ 70169974
Certificate No: Sira MC120217/03
Initial Certification: 7 November 2012
This Certificate Issued 10 January 2018
Renewal Date: 6 November 2022

Emily Alexander
Deputy Certification
Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900



*The MCERTS certificate consists of this document in its entirety.
For conditions of use, please consider all the information within.
This certificate may only be reproduced in its entirety and without change.
To authenticate the validity of this certificate please visit www.csagroup.org/mcerts*

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, the water monitoring system is suitable for the process on which it will be installed.

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

The field trial was conducted over a period of 9 months on an effluent discharge at The Royal Mint. The data for error under field conditions was collated over a 3 month period.

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:

R1: Environment Agency Laboratory Test Report; ABB AX 400 pH Measurement.
Test report reference: TR-10 dated April 2012.

R2: MCERTS 7650 with AX400, testing to be used for MCERTS certification of 76xx pH instruments when used with AX400 transmitter. Conducted by ABB (witnessed by Andy Godley, WRc) at ABB Ltd, Stonehouse. Dated 9th July 2012

R3: ABB AX400 pH meter MCERTS Witness Testing. A Godley, dated July 2012.
Test report reference: UC9162.

Product Certified

The ABB AX 400 pH measuring system consists of the following parts:

AX400 series Transmitter
7600 series pH sensor

Transmitter Options:
AX460, AX466, AX461, AX463, AX465, AX468, AX416, AX436, AX456, AX486

Sensor Options:
7650, 7651, 7653, 7660

This certificate applies to all instruments fitted with software version 3.02 (serial numbers 1076 – monitor, and 0503 – sensor, onwards).

Certified Performance

The instrument was evaluated for use under the following conditions:
Ambient Temperature Range: -20°C to +55 °C

Unless otherwise stated the evaluation was carried out on the certification range 0-12.5 pH units

Test	Results expressed as pH units				Other results	MCERTS specification
	<0.05	<0.1	<0.2	<0.5		
Combined performance characteristic				0.21		<0.3 pH units
Mean error, x			0.15			<0.2 pH units
Linearity, X _L	0.03					<0.1 pH units
Repeatability, U _R	0.03					<0.1 pH units
Drift, X _D (7 days)	0.04					<0.1 pH units
Output impedance, X _O (50Ω to 750Ω)	0.03					<0.05 pH units
Supply voltage, X _V (12V to 30V DC & 90V to 264V AC)	0.00					<0.05 pH units
Ambient temperature, X _T (-20°C to +55°C)	0.01					<0.1 pH units
Relative humidity, X _{RH} (55°C >95%RH)	0.01					<0.1 pH units
Incident Light, X _{LX}					N/A	<0.05 pH units
Sample temperature, X _{ST} (2°C to 90°C)		0.08				<0.1 pH units
Sample flow rate (0 to 5L/s)		0.05				<0.05 pH units
Sample pressure					Note 1	<0.05 pH units
Response time (lab)					100s max	Value reported
Initial warm up time					150s	Value reported
Loss of power					Data retained after 74 hours.	Value reported

Test	Results expressed in pH units				Other results	MCERTS specification
	<0.05	<0.1	<0.2	<0.5		
Error under field conditions					100%	<Uc in at least 90% of reference measurements
Response time – beginning of trial					Note 2 100s	Value reported
Response time – end of trial					In Progress	Value reported
Up-time					100%	>95%
Maintenance	Routine Monthly maintenance only					<0.2 pH units

- Note 1. Instrument is suitable for use at atmospheric pressure only.
 Note 2. Result reported is from the laboratory testing.

Description:

pH and Redox (ORP) measurement for the Power Industry

The measurement of pH and Redox (ORP) in high purity water applications specifically in power plants requires a number of essential elements to achieve accurate and stable readings. These include: a stainless steel flowcell to minimize static effects, reservoir-fed reference junction that overcomes KCl depletion and blockage ensuring a stable junction potential and simple reference junction replacement for low-cost maintenance.

The 7660 system meets all these requirements in samples below 20 $\mu\text{S}/\text{cm}$ providing accurate measurement, vital for boiler chemistry control. For applications up to 100 $\mu\text{S}/\text{cm}$ the 7651 with polypropylene flowcell and the 7653 with a reservoir-fed reference electrode option are an ideal economical option.

pH measurement in potable water treatment

Accurate and stable pH measurement is required for optimum control at the coagulation stage of the process to minimize coagulation costs and treated water quality. Coagulation is a particularly difficult application due to the high level of suspended solids and significant precipitation that frequently blocks the reference junction. The essential elements for such pH systems include: optional flowing reference junction that overcomes KCl depletion and blockage, simple reference junction replacement to provide a low-cost maintenance in samples that contain high levels of particulates and low resistance glass electrode option provides fast response in low temperature applications.

The 7600 Series meets all these requirements with the 7651 with polypropylene flowcell and the 7653 with a reservoir-fed reference electrode are an ideal low-cost option. Both systems are highly-suited throughout the potable water treatment process.

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 MC120217/00
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.