

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

***AWT420 Transmitter and 100GP and 500PRO pH sensors
APS121, APS122, APS521 and APS522***

Manufactured by:

ABB Limited

Oldends Lane
Stonehouse
Gloucestershire
GL10 3TA

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

**Performance Standards and Test Procedures for Continuous Water
Monitoring Equipment, Part 2: Performance standards and test procedures for on-line
monitors, Environment Agency, version 3.1, August 2010**

Certification Ranges:

pH (100GP) 2-12
pH (500PRO) 2-10

Project No.: 80023487
Certificate No: Sira MC220375/00
Initial Certification: 3 May 2022
This Certificate issued: 3 May 2022
Renewal Date: 2 May 2027



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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

CSA Group Testing UK Ltd

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Certificate Contents

Approved Site Application.....	2
Basis of Certification	2
Product Certified.....	3
Certified Performance	4
Description.....	7
General Notes	8

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.

The field testing was carried out at a waste-water treatment plant for a 3-month period between 12th November 2020 and 12th February 2021. An AWT420 transmitter (serial no.(S/N) 3K210000124619) and the following sensors were installed at the field trial site, sensor APS122(S/N 3K220000741280) and APS521(S/N 3K220000741283).

Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

Report reference, WRC UC 14793/17195-0, November 2021 "MCERTS Testing of ABB AWT420 Controller and 100GP & 500PRO pH sensors v3"

Report reference, CSA Group Testing UK Ltd 80023487, June 2021, including test report "MCERTS Field Trial Report - West Wellow", 24 March 2021

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Product Certified

The pH measuring system consists of the following parts:

- AWT420 Transmitter
- 100GP pH sensor, including variants APS121 and APS122
- 500PRO pH sensor, including variants APS521 and APS522

This certificate applies to all instruments fitted with software version and serial numbers as follows:

AWT420

- serial numbers 3K210000124619 onwards
- software version 01.00.32

pH sensor

- serial numbers 3K220000741283 onwards
- software version 04.05

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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 2-12 pH units, except for 'pH 500PRO' tests mean error, linearity and the resultant combined performance characteristic which was carried out on the certification range 2-10 pH units.

Laboratory Test	Results expressed as pH units				Other results	MCERTS specification
	<0.05	<0.1	<0.2	<0.5		
Combined performance characteristics, U_c pH 100GP pH 500PRO				0.250 0.269		Annex D <0.3 pH units
Mean error, x pH 100GP pH 500PRO			-0.17 -0.17			Clause 6.3.3 <0.2 pH units
Linearity, X_L pH 100GP pH 500PRO		0.05	0.10			Clause 6.3.3 <0.1 pH units
Repeatability, U_R pH 100GP pH 500PRO		0.05 0.04				Clause 6.3.3 <0.1 pH units
Drift, X_D , (7 days) pH 100GP pH 500PRO		0.04 0.08				Clause 6.3.5 <0.1 pH units
Output impedance, X_O (20Ω to 500Ω) pH 500PRO	0.00					Clause 6.3.6 <0.05 pH units
Supply voltage, X_V , (18V to 36V DC & 100V to 240V AC) pH 500PRO (DC) pH 500PRO (AC)	0.005 0.020					Clause 6.3.7 <0.05 pH units
Ambient temperature, X_T , (-20°C to +55°C) pH 100GP pH 500PRO		0.05 0.05			Note 1	Clause 6.3.8 <0.1 pH units
Relative humidity, X_{RH} (55°C >95%RH) pH 100GP pH 500PRO	0.04 0.01					Clause 6.3.8 <0.1 pH units

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Laboratory Test	Results expressed as pH units				Other results	MCERTS specification
	<0.05	<0.1	<0.2	<0.5		
Sample temperature, X_{ST} (ambient, low, high) pH 100GP pH 500PRO		0.03 0.02			Note 2	Clause 6.3.10 <0.1 pH units
Sample flow-rate X_{SQ} , (3.3 & 3.5/min) pH 100GP	0.00					Clause 6.3.11 <0.05 pH units
Sample pressure X_{SP} , (1.69 & 1.84 bar) pH 100GP	0.00					Clause 6.3.12 <0.05 pH units
Response time pH 100GP - increase pH 100GP – decrease pH 500PRO - increase pH 500PRO – decrease					51s 40s 20s 14s	Clause 6.3.2 to be reported
Initial warm-up pH 100GP					maximum 120s	Clause 6.1.2 to be reported
Loss of Power pH 100GP pH 500GP					All data retained after 94 hours	Clause 6.3.1 to be reported

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Field Test	Results expressed as pH units				Other results	MCERTS specification
	<0.05	<0.1	<0.2	<0.5		
Error under field conditions pH 100GP pH 500PRO					91.7% 100.0%	clause 7.3 in at least 90% of reference measurements the error shall be ≤ to the Uc of 0.3
Response time (maximum for either analog or digital) pH 100GP - beginning of trial - end of trial pH 500PRO - beginning of trial - end of trial					6.47 secs 73.3 secs 11.7 secs 200 secs	Clause 7.4 to be reported
Up-time					99.9% Note 3	Clause 7.5 >95%
Maintenance					1 month Note 3	Clause 7.6 to be reported

Note 1 - During the ambient temperature test for the 100GP sensor a power failure occurred with a resultant step change and calibration offset noted, however there was no indication of a significant effect from the temperature changes.

Note 2 - For the sample temperature test each sensor was tested separately using a reference sensor.

Note 3 - The Up-time calculation takes account of a manual intervention of approximately 60 minutes associated with a calibration. This calibration was carried out one month into the field test.

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Description

AWT420 Transmitter

The AWT420 transmitter can be used with either analog or digital EZLink sensors for a wide range of applications including drinking water, wastewater, industrial water and power.

Operation simplicity is a key feature of the AWT420 with its powerful, yet intuitive software, advanced self-diagnostics and its unique modular design that enables users to achieve increased efficiency through greater user flexibility, reduced process downtime and simplified maintenance. With integrated Bluetooth you can securely connect to any iOS or Android device using the EZLink connect app to easily access essential sensor information. From checking your audit logs to downloading the latest software through your smartphone, we are confident that EZLink connect will make your life that little bit easier by providing you with a wealth of information and services to support you wherever and whenever you need it.

- Plug-and-play universal modular design
- 'Easy Setup' menus provide step-by-step guidance
- Multi-level security access prevents unauthorized modification of process control data
- Secure data archiving to an SD card
- Direct connection to your smart device
- HART, Ethernet, PROFIBUS or MODBUS digital communications
- Wall-, panel- or pipe-mountable

APS pH sensors

Highly accurate with fast response times, the versatile 100 GP provides complete confidence in a wide range of general process applications including drinking water, municipal wastewater and cooling waters. The 100GP sensors have a modular design with Universal ¾ inch NPT design for simplified mounting and are available in a range of detached or integral cabling options.

500Pro pH/ORP sensors

Featuring a triple-junction design with ion traps, reference shielding and Viton® Extreme O-ring protection, the 500 PRO provides enhanced poisoning resistance and chemical protection, extending operational lifetime without compromising performance. The 500 PRO sensors have a modular design with Universal ¾ inch NPT design for simplified mounting and are available in a range of detached or integral cabling options.

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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 CSA Certificates'.
2. The design of the product certified is defined in the CSA design schedule V00 for certificate No. Sira MC220375/00.
3. If the certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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