

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM18US0040X

3. **Equipment:** AWT210 Electrochemical Transmitter  
(Type Reference and Name)

4. **Name of Listing Company:** ABB Limited

5. **Address of Listing Company:** Howard Road  
Eaton Socon  
St Neots,  
Cambridgeshire, PE19 8EU,  
UNITED KINGDOM

6. The examination and test results are recorded in confidential report number:

3053362 dated 8<sup>th</sup> March 2019

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2018, FM Class 3611:2018, FM Class 3810:2018,  
ANSI/IEC 60529:2004

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

**Certificate issued by:**

J.E. Marquedant  
VP, Manager - Electrical Systems

15 December 2021

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmaprovals.com](mailto:information@fmaprovals.com) [www.fmaprovals.com](http://www.fmaprovals.com)

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10. Equipment Ratings:

Intrinsically safe for Class I and II, Division 1, Groups A, B, C, D, E, F and G; Nonincendive for Class I, II and III, Groups A, B, C, D, F and G temperature class T4; Class I, Zone 2 AEx ic IIC T4 Gc hazardous (classified) locations indoors and outdoors (IP66) with an ambient temperature range of -25°C to +60°C.

11. The marking of the equipment shall include:

Class I Division 1, Groups A, B, C, D; T4 Ta = -25°C to +60°C; IP66

Class II, Division 1, Groups E, F, G, T4 Ta = -25°C to +60°C; IP66

Class I, Division 2, Groups A, B, C, D; T4 Ta = -25°C to +60°C; IP66

Class II, Division 2. Groups, F, G; Class III Ta = -25°C to +60°C; IP66

Class I, Zone 2 AEx ic IIC T4 Gc Ta = -25°C to +60°C; IP66

12. Description of Equipment:

The AWT210 2-wire transmitters are designed for use with a variety of electrochemical sensor for measurement of conductivity, or pH/ORP. There are four different type of sensors that can be used with the AWT210. The communications and the sensor circuits are modular designed for easy installation and replacement and fit to the baseplate inside the enclosure using quarter turn locking devices. HART, Fieldbus and Profibus communications options are available and each use a separate module. It is not possible to fit two communication modules in to the same transmitter. A display is fitted to the door of the enclosure.

The AWT210 transmitter housing is made of plastic, or aluminium.

Operation Temperature Ranges:

The ambient operating temperature range of the AWT210 is -20 °C to 60 °C.

Electrical data:

The AWT210 transmitter has the following electrical ratings;

Energy limitation parameters:

HART

Ui < 30 Vdc; li < 100 mA; Pi < 0.8 W; Ci < 0.56 nF; Li = 3.3 mH – Class I, Division 1 and Class I Division 2

Ui < 30 Vdc; li < 152 mA; Pi < 0.8 W; Ci < 0.56 nF; Li = 3.3 mH – Class I, Zone 2

Fieldbus and Profibus – Class I, Division 1

Ui ≤ 24 V; li ≤ 250 mA; Pi ≤ 1.2 W, Ci = 1.1 nF, Li = 0 – FF Linear

Ui ≤ 17.5 V; li ≤ 380 mA; Pi ≤ 5.32 W, Ci = 1.1 nF, Li = 0 – FF Non-Linear

Ui ≤ 24 V; li ≤ 250 mA; Pi ≤ 1.2 W, Ci = 1.1 nF, Li = 0 – PA Linear

Ui ≤ 17.5 V; li ≤ 360 mA; Pi ≤ 2.52 W, Ci = 1.1 nF, Li = 0 – PA Non-Linear

Fieldbus and Profibus – Class I, Division 2 and Class I Zone 2

Ui ≤ 24 V; li ≤ 250 mA; Pi ≤ 1.2 W, Ci = 1.1 nF, Li = 0 – FF Linear

Ui ≤ 17.5 V; li ≤ See Table; Pi ≤ 5.32 W, Ci = 1.1 nF, Li = 0 – FF Non-Linear

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$U_i \leq 24 \text{ V}$ ;  $I_i \leq 250 \text{ mA}$ ;  $P_i \leq 1.2 \text{ W}$ ,  $C_i = 1.1 \text{ nF}$ ,  $L_i = 0$  – PA Linear  
 $U_i \leq 17.5 \text{ V}$ ;  $I_i \leq \text{See Table}$ ;  $P_i \leq 2.52 \text{ W}$ ,  $C_i = 1.1 \text{ nF}$ ,  $L_i = 0$  – PA Non-Linear

Assessment of maximum output current from associated apparatus for use with 'ic' FF/PA rectangular supplies	
$U_o$ (V)	Permissible current ( $I_o$ ), for IIC (mA)
14	274
15	199
16	154
17	121
17.5	112
Note: The maximum output power $P_o$ from 'ic' FF/PA power supplies is not restricted	

Output parameters HART and FF/PA

$U_o = 11.8 \text{ V}$ ;  $I_o = 11.8 \text{ mA}$ ;  $P_o = 36 \text{ mW}$ ;  $C_o = 1.5 \text{ uF}$ ;  $L_o = 1 \text{ H}$

Output parameters for EzLink

$U_o = 5.21 \text{ V}$   $I_o = 98.2 \text{ mA}$   $P_i = 0.1279 \text{ W}$   $C_o = 60 \text{ uF}$   $L_o = 43 \text{ mH}$

## **AWT210a1cdefgh Electrochemical Transmitter**

IS / I, II / 1 / ABCDEFG / T4  $T_a = 60^\circ\text{C}$ ; IP66 - FISCO

I / 2 / AEx ic / IIC / T4 Gc  $T_a = 60^\circ\text{C}$ ; IP66

a = Reserved for future use

c = sensor input: C2, C4, C1, D1 or P1

d = Communications; H1, F1 or P1

e = Approvals: E1, E2, E5 or E6

f = Mounting kits: A1, A2, A3 or A4

g = Cable entry options: U1, U2 or U3

h = Documentation: Not relevant to safety

## **AWT210a2cdefgh Electrochemical Transmitter**

IS / I, II / 1 / ABCDEFG / T4  $T_a = 60^\circ\text{C}$ ; IP66 - FISCO

I / 2 / AEx ic / IIC / T4 Gc  $T_a = 60^\circ\text{C}$ ; IP66

NI / I, II, III / 2 / ABCDFG / T4

a = Reserved for future use

c = sensor input: C2, C4, C1, D1 or P1

d = Communications; H1, F1 or P1

e = Approvals: E2 or E6

f = Mounting kits: A1, A2, A3 or A4

g = Cable entry options: U1, U2 or U3

h = Documentation: Not relevant to safety

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## 13. Specific Conditions of Use:

1. The AWT210 (enclosure option b = 2) contains aluminium and is considered to present a potential risk of ignition by impact or friction. Care shall be taken into account during installation and use to prevent impact or friction.
2. For areas subject to explosive dust atmospheres the painted surface of the AWT210 may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in IEC TS 60079-32-1. Cleaning of the painted surface shall only be done in accordance with the manufacturer's instructions.
3. For the Lexan enclosure – for areas subject to explosive gas atmospheres the Lexan enclosure AWT210 (enclosure option b = 1) may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the Lexan is relatively free of surface contamination such as dirt, dust, or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in IEC TS 60079-32-1. Cleaning of the surface shall only be done in accordance with the manufacturer's instructions.
4. Where the manufacturer of the equipment has not identified the variant of communication module and sensor module on the label, the user shall, on installation, the variant of communication module and sensor module on the label.

## 14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

## 15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

## 16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
8 <sup>th</sup> March 2019	Original Issue.
25 <sup>th</sup> July 2019	<u>Supplement 1:</u> Report Reference: – PR451085 dated 25 <sup>th</sup> July 2019. Description of the Change: Addition of Fieldbus and Profibus communications option.
28 <sup>th</sup> September 2020	<u>Supplement 2:</u> Report Reference: – RR224932 dated 28 <sup>th</sup> September 2020. Description of the Change: Change to model code options.
9 <sup>th</sup> September 2021	<u>Supplement 3:</u> Report Reference: – PR458235 dated 9 <sup>th</sup> September 2021. Description of the Change: Addition of EzLink Module. Addition of Ex ic rating.

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Date	Description
15 <sup>th</sup> December 2021	Supplement 4: Report Reference: – RR230198 dated 15 <sup>th</sup> December 2021. Description of the Change: Documentation changes.

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