

EU-Type Examination Certificate



1. **EU-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3. **EU-Type Examination Certificate Number: ITS13ATEX17811X Issue 2**

4. **Product:** RS-85 Vibrating Fork Level Switch

5. **Manufacturer:** ABB Inc.

6. **Address:** 125 East County Line Rd. Warminster, PA 18974; USA

7. This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8. Intertek Testing and Certification Limited, Notified Body number 0359 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council dated 26 February 2014, certifies that the product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. New issues of such EC-Type Examination Certificates, and Supplementary Certificates to such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

The examination and test results are recorded in confidential Intertek Reports 100756808EDM-001 dated March 2015, 102612865CRT-008a and 102612865CRT-008b dated 2017-05-05 and 103106620CRT-002a, 103106620CRT-002b and 103106620CRT-002c dated 2017-08-17.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012, EN 60079-1:2014, EN 60079-26:2015 and EN 60079-31:2014 except in respect of those requirements referred to at item 16 of the Schedule.

10. If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Safe Use specified in the Schedule to this certificate.

11. This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12. The marking of the product shall include the following:



II 1/2 G

II 1/2 G

II 1 D

Ex db IIC T5 Ga/Gb

Ex db IIC T6 Ga/Gb

Ex tb IIIC T150°C Db

Tamb = -40°C to +66°C

Tamb = -40°C to +50°C

Tamb = -40°C to +66°C

Maximum Process Temperature: 177°C

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Kevin J. Wolf
Certification Officer
26OCT2017

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13. Description of Equipment or Protective System

The Vibrating Fork Level Switch, Model RS85 utilizes a piezoelectric driven tuning fork that is used for monitoring liquids. The apparatus is composed of a sensor housing and a probe. The sensor housing may be a 'single compartment' aluminum housing or a 'dual compartment' housing made of aluminum or 316L stainless steel. The housings may have either a blank cover or a window. The probe can be between 86mm to 2133mm long, depending on the end user's requirements.

The equipment probe may be installed in an area requiring EPL Ga.

AMBIENT TEMPERATURE:

For group IIIC, the ambient temperature range is -40°C to +66°C.

For group IIC, the ambient temperature range and process temperature influence the temperature class. Refer to the special conditions of safe use for a table showing the temperature classes.

For both the IIC and IIIC installations, the maximum process temperature is +121°C, unless the equipment is provided with the high temperature extension which extends the maximum process temperature to +177°C.

NOMENCLATURE

RS85.a.b.c.d.e.f.g.h.i.j.k.l.m.n Example: RS85.A1W.P1.S6.2.E2.111.HT6

a. Housing

A1 Single Compartment Aluminum Housing

A1W Single Compartment Aluminum Housing with Glass Viewing Window

A2 Dual Compartment Aluminum Housing

A2W Dual Compartment Aluminum Housing with Glass Viewing Window

S2 Dual Compartment 316L Stainless Steel Housing

S2W Dual Compartment 316L Stainless Steel Housing with Glass Viewing Window

b. Process Connection

P7 3/4" MNPT

P1 1" MNPT

B7 3/4" BSPT

B1 1" BSPT

T Tri-Clamp

WP Welded Flange - Minimum 1"

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FL Loose Flange - Minimum 1"

c. Process Connection Material
S6 316 Stainless Steel

HC Hastelloy C

MO Monel

d. Flange Connection Size/Rating type
X None

10 1" Tri-Clamp

15 1.5" Tri-Clamp

20 2" Tri-Clamp

25 2.5" Tri-Clamp

30 3" Tri-Clamp

40 4" Tri-Clamp

60 6" Tri-Clamp

XXX Specify Type and size from flange designation table (SLG-0001-1)

e. Sensor Material
S6 316 Stainless Steel

HC Hastelloy C

MO Monel

f. Probe Finish
X Standard Finish

1F 180 grit finish

2F 240 grit finish

EP 240 grit and Electro-polished (316 Stainless Steel only)

TN6 Teflon "S" Coated (316 Stainless Steel only, Flange Units Only)

HL6 Halar Coated (316 Stainless Steel only, Flange Units Only)

TF6 Tefzel Coated (316 Stainless Steel only, Flange Units Only)

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- g. Power**
 - 1 18-36 VDC
 - 2 100-136 VAC
 - 3 200-245 VAC
- h. Approvals**
 - E2 ATEX & IECEX
- i. Probe Length**
 - 086 3-3/8" (86mm)
 - 111 4-3/8" (111mm)
 - 136 5-3/8" (136mm)
 - EXT Extended Length Probe, up to 84" (2133mm)
- j. Temperature Extension**
 - X None
 - HT6 6" 316 Stainless Steel High Temperature Extension (EPL Gb only)
- k. Electrical Connection**
 - X None
 - MM M20 Conduit Connection - Brass
 - MMS M20 Conduit Connection - Stainless Steel
- l. Hermetic Seal**
 - X None
 - HS Hermetic Seal between Probe and Housing (Hastelloy or Stainless only)
- m. Remote Mounted Electronic**
 - X None
 - R10 Remote Mounted Electronic; 10 ft (3.048m)
 - R20 Remote Mounted Electronic; 20 ft (6.096m)
- n. Packing Gland**
 - X None

14. Report Number

Intertek Reports 100756808EDM-001 dated March 2015, 102612865CRT-008a and 102612865CRT-008b dated 2017-05-05 and 103106620CRT-002a, 103106620CRT-002b and 103106620CRT-002c dated 2017-08-17.

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15. Special Conditions of Certification

(a). Specific Conditions of Safe Use

- Blanking plugs, cable glands, and wiring must be suitable for the service temperature range of $-40^{\circ}\text{C} \leq T_{\text{service}} \leq 90^{\circ}\text{C}$.
- When equipment is installed using type protection Ex tb, cable entries and blanking elements must maintain the ingress protection of the enclosure to at least IP6X.
- When equipment is provided with an M20 thread adaptor, no additional adaptor or reducer may be used, and stopping plugs must not be installed in the adaptor
- When non-metallic probe coatings are used, there is a risk of ignition from electrostatic discharge due to the flow of non-conductive media (for example in stirring vessels or pipes). The user must decide on the suitability of the equipment for the particular application.
- The High Temperature Extension (HT6) must only be installed in an area requiring EPL Gb, while the probe may be installed in an area requiring EPL Ga.
- Flamepaths are not intended to be repaired.
- The temperature class for group IIC installation is determined by the following table:

Temperature Class	Ambient Temperature (TX)	Maximum Process Temperature
T6	50°C	80°C
T5	60°C	95°C
T4	60°C	130°C
T3	60°C	177°C

(b). Conditions of Manufacture - Routine Tests

- Each probe must be subject to routine testing according to clause 15.1.3.1 of EN 60079-1 to a pressure of at least 200.3 bar.
- Each window must be routine tested according to clause 15.1.3.1 of EN 60079-1 to a pressure of at least 47.9 bar

16. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Reports 100756808EDM-001 dated March 2015, 102612865CRT-008a and 102612865CRT-008b dated 2017-05-05 and 103106620CRT-002a, 103106620CRT-002b and 103106620CRT-002c dated 2017-08-17.

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17. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
RS 85 GENERAL ASSEMBLY AND OPTIONS	RS85-0000-1	E	12/18/14
SINGLE COMPARTMENT HOUSING EXPLOSIONPROOF / FLAMEPROOF CERTIFICATION	HSG2020	F	10/07/14
DUAL COMPARTMENT HOUSING EXPLOSIONPROOF / FLAMEPROOF CERTIFICATION	HSG2017	G	10/07/14
RS85 SERIES ATEX & IECEX NAMETAG CEX, IEX & E2 FLAMEPROOF OPTIONS	TAG0123	B	10/24/17
RS85 Marking Procedure for FM, CSA, ATEX & IECEX	TAG0250	A	11/30/16
RS85 SERIES WELDED FLANGE (WP) ASSEMBLY DETAIL	FAB2169	B	09/24/12
RS85 SERIES TRI-CLOVER ASSEMBLY DETAIL	FAB2170	B	09/24/12
RS85 SERIES THREADED PROCESS CONNECTION ASSEMBLY DETA	FAB2171	B	09/21/12
0.75" SCH 80 MACHINED PIPE NIPPLE	FAB3002	D	09/21/12
FLAMEPATH FOR HIGH TEMPERATURE EXTENSION ADAPTER	HSG2046	A	07/22/13
Adapter 0.75 Inch MNPT X 0.75 Inch with 0.875 Inch OD X 0.065 Inch Wall Tube	MEC2002	F	10/29/12
Adapter 0.75 MNPT X 1 MNPT With 0.875 OD X .065 Wall Tube	MEC2023	C	10/29/12
Adapter 0.375 Inch MNPT X 0.875 Inch OD X 0.065 Inch Wall Tube	ME2024	C	10/29/12
Adapter 0.75 Inch MNPT With 0.875 Inch OD X 0.065 Inch Wall Tube	MEC2025	C	10/29/12
Adapter 0.75 Inch MNPT X 0.875 Inch OD X 0.0625 Inch Wall Tube-Model	MEC2577	A	10/29/12

18. Details of Certificate changes:

Issue 0	March 2015	Original Issue
Issue 1	May 2017	Update manufacture and applicant address and associated drawing changes Update to directive 2014/34/EU
Issue 2	August 2017	Update manufacture and applicant address Update the QAN for new address Updated drawing list Updated to the latest editions of the standards. Changed the rating from Ex ta IIIC T150 Da to Ex tb IIIC T150 Db Updated the condition of use to use a suitable seal from Ex ta to Ex tb

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