IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx ITS 13.0022X

Issue No: 1

Certificate history:
Issue No. 1 (2017-05-12)
Issue No. 0 (2013-12-18)

Status: **Current**

Date of Issue: **2017-05-12**

Applicant: **ABB**
17100 ManchacPark Lane, (Suite B)
Baton Rouge, LA 70817
United States of America

Equipment: **MS50 Buoyancy Level Switch**
Optional accessory:

Type of Protection: **Flameproof 'd', Dust-Ignitionproof 'ta'**

Marking:

Ex d IIC T* Ga/Gb (-40°C ≤ Ta ≤ +66°C)

Ex ta III C T* Da (-40°C ≤ Ta ≤ +66°C)

IECEx ITS 13.0022X

Approved for issue on behalf of the IECEx Certification Body: P Moss

Position: Certification Officer

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
Leatherhead,
Surrey, KT22 7SB
United Kingdom

IECEx Certificate of Conformity

Certificate No:	IECEx ITS 13.0022X	Issue No: 1
Date of Issue:	**2017-05-12**	Page 2 of 5
Manufacturer:	**ABB** 17100 ManchacPark Lane, (Suite B) Baton Rouge, LA 70817 **United States of America**	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-26 : 2006 Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-31 : 2008 Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

GB/ITS/ExTR13.0059/00 US/ETL/ExTR17.0031/00

Quality Assessment Report:

NO/PRE/QAR16.0021/00

IECEx Certificate of Conformity

Certificate No: IECEx ITS 13.0022X Issue No: 1

Date of Issue: **2017-05-12**

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The buoyancy level switch, Model MS50 is an applicable switching mechanism for level sensing that uses buoyancy to detect the level or interface of liquids. The apparatus is composed of a sensor head and a probe. The probe can be between 0.2 to 6 meters long depending on the end users requirements. The sensor head is to be used with a blank cover only.

The equipment has been evaluated with types of protection ‘d’ and ‘ta’ independently. For equipment installed in atmospheres that rely on type protection ‘ta’, the conditions of safe use (ii) must be met. For equipment installed in atmospheres that rely on type protection ‘d’, the conditions of safe use listed in (i) must be met.

The probe has been evaluated as being suitable for use in EPL Ga atmospheres. If the equipment is to be used in this manner, the conditions of safe use listed in (iii) must be met.

SPECIFIC CONDITIONS OF USE: YES as shown below:

(a). Special Conditions for safe use

(i) Installation Requirements (Ex d): Appropriate Ex d blanking plugs, cable glands, and wiring need to be suitable for 75°C or greater. With the use of cable or conduit entries, a sealing device shall be provided immediately on the entrance of the enclosure. There may be no more than 3 switches per 0.6 m. Temperature codes are based on the following table in relation to the maximum surface temperature:

Maximum Process Temperature	Temperature Code
≤76°C	T6
≤91°C	T5
≤126°C	T4
≤149°C	T3

(ii) Installation Requirements (Ex ta): Cable entries and blanking elements must be used which maintain the ingress protection of the enclosure to at least IP6X. There may be no more than 3 switches per 0.6 m. Temperature codes are based on the following table in relation to the maximum surface temperature:

Maximum Process Temperature	Maximum Surface Temperature
≤76°C	T85°C
≤91°C	T100°C
≤126°C	T135°C
≤149°C	T200°C

(iii) Installation Requirements (EPL Ga): When non-metallic probe sleeve materials are used (PVC, CPVC, and PVD), 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.

(b). Conditions For Use (Routine Tests) Due to welded construction, the probe must be subject to routine testing according to clause 15.1.3.1 of EN 60079-1 to a pressure of at least 186 bar. Routine tests must be recorded.

IECEx Certificate of Conformity

Certificate No: IECEx ITS 13.0022X Issue No: 1

Date of Issue: **2017-05-12**

IECEx Certificate of Conformity

Certificate No: IECEx ITS 13.0022X Issue No: 1

Date of Issue: **2017-05-12** Page 5 of 5

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

1. Updated manufacture and applicant address
2. Updated QAR for new address
3. Updated drawing list in the annex
4. Corrected typo in annex

Annex:

Annex to IECEx ITS 13.0022X Issue 0 and 1.pdf

IECEx Certificate of Conformity

Certificate No:	IECEx ITS 13.0022X	Issue No. 0
Annex No. 1		

Product information associated with Issue 0 of this certificate:

The buoyancy level switch, Model MS50 is an applicable switching mechanism for level sensing that uses buoyancy to detect the level or interface of liquids. The apparatus is composed of a sensor head and a probe. The probe can be between 0.2 to 6 meters long depending on the end users requirements. The sensor head is to be used with a blank cover only.

The equipment has been evaluated with types of protection 'd' and 'ta' independently. For equipment installed in atmospheres that rely on type protection 'ta', the conditions of safe use listed in section (ii) must be met. For equipment installed in atmospheres that rely on type protection 'd', the conditions of safe use listed in section (i) must be met.

The probe has been evaluated as being suitable for use in EPL Ga atmospheres. If the equipment is to be used in this manner, the conditions of safe use listed in section (iii) must be met.

AMBIENT TEMPERATURE:
Ambient temperature are -40°C to +66°C for the housing. The probe can be placed in process temperatures between -45°C to +149°C when installed as per the manufacturers' instructions.

TEMPERATURE CODE:
The maximum temperature code is directly related to the maximum process temperature the equipment is designed for. The requirements are as follows:

Maximum Process Temperature	Temperature Code
≤76°C	T6
≤91°C	T5
≤126°C	T4
≤149°C	T3

NOMENCLATURE:
MS50.a.b.c.d.e.f.g
Examples: MS50.A1.SS6.CE.P1.F70B.HT
MS50.A1.SS6.CE.P7.F71B.HT.MF2

.a Housing
A1 Aluminium housing

.b Probe Material
SS6 Type 316L Stainless Steel
A20 Alloy 20
HSC C-276 Hastelloy
PVC PVC, this is an outer casing that is mounted around a metal probe
CPV CPVC, this is an outer casing that is mounted around a metal probe
PVD KYNAR, this is an outer casing that is mounted around a metal probe

.c Approvals
E2 ATEX

.d Process Connection

P7	3/4" MNPT				
P1	1.0" MNPT	**SR11**	1.0" 150# Flange	**SR13**	1.0" 300# Flange
P15	1.5" MNPT	**SR151**	1.5" 150# Flange	**SR153**	1.5" 300# Flange

Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
Leatherhead,
Surrey, KT22 7SB
United Kingdom

IECEx Certificate of Conformity

Certificate No:	IECEx ITS 13.0022X	Issue No. 0
Annex No. 1		

P2	2.0” MNPT	**SR21**	2.0” 150# Flange	**SR23**	2.0” 300# Flange
P3	3.0” MNPT	**SR31**	3.0” 150# Flange	**SR33**	3.0” 300# Flange
P4	4.0” MNPT	**SR41**	4.0” 150# Flange	**SR43**	4.0” 300# Flange
P7A	3/4" MNPT with compression fitting for adjustable length “L”				

.e Float

FX Float:

This option is selected from SLG-0003-1

.f Options

HT High Temperature Option:

This is required for process temperatures between +93°C and +149°C

.g Multi-Float Option

MF2 Dual-switch configuration
MF3 Three-switches configuration
MF4 Four- switches configuration
MF5 Five- switches configuration
MF6 Six- switches configuration

Conditions of safe use associated with Issue 0 of this certificate:

(i) Installation Requirements (Ex d):

Appropriate Ex d blanking plugs, cable glands, and wiring need to be suitable for +75°C or greater.

With the use of cable or conduit entries, a certified sealing device shall be provided immediately on the entrance of the enclosure.

There may be no more than 3 switches per 0.6 m

Temperature codes are based on the following table in relation to the maximum surface temperature:

Maximum Process Temperature	Temperature Code
≤76°C	T6
≤91°C	T5
≤126°C	T4
≤149°C	T3

(ii) Installation Requirements (Ex ta):

Cable entries and blanking elements must be used which maintain the ingress protection of the enclosure to at least IP6X.

There may be no more than 3 switches per 0.6 m

Temperature codes are based on the following table in relation to the maximum surface temperature:

Maximum Process Temperature	Temperature Code
≤76°C	T6
≤91°C	T5
≤126°C	T4
≤149°C	T3

Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
Leatherhead,
Surrey, KT22 7SB
United Kingdom

Certificate No:	IECEx ITS 13.0022X	Issue No. 0
Annex No. 1		

(iii) Installation Requirements (EPL Ga):

When non-metallic probe materials are used (PVC, CPVC, and PVD), 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.

Manufacturer's documents
Drawings associated with Issue 0 of this certificate:

Title:	Drawing No.:	Rev. Level:	Date:
MS50 Buoyancy Level Switch General Assembly and Options	MS50-0000-1	A	10/23/2013
MS50 Buoyancy Level Switch Shop Fabrication Document Hex Plug Process Connection	MS50-0005-1	D	05/17/2013
MS50 Buoyancy Level Switch Flanged Process Connection Shop Fabrication Document	MS50-0005-2	D	05/17/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-3	D	05/17/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-4	D	06/25/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-5	D	06/25/2013
MS50 Buoyancy Level Switch Shop Fabrication Document P7 Process Connection Option	MS50-0005-6	B	05/17/2013
MS50 Buoyancy Level Switch Shop Fabrication Document P7A Process Connection Option	MS50-0005-8	B	05/17/2013
Float Selection Guide	SLG-0003-1	E	7-2012
Single Compartment Housing Explosionproof / Flameproof Certification	HSG2020	D	10/16/2013
MS50 Buoyancy Level Switch for P7A Compression Process Connection	FAB2301	NC	06/25/2013
MS50 Buoyancy Level Switch for Hex Plug Process Connection	FAB2302	NC	06/25/2013
MS50 Buoyancy Level Switch For Flanged Process Connection	FAB2304	NC	06/25/2013
MS50 Buoyancy Level Switch ATEX & IEC Nametag	TAG0255	NC	06/22/2013
Operating Instruction Manual for MS50 Buoyancy Level Switch	OI_MS50-EN	F	10-2013

IECEx Certificate of Conformity

Certificate No:	IECEx ITS 13.0022X	Issue No. 1
Annex No. 2		

Product information associated with Issue 1 of this certificate:

Same as Issue 0.

Conditions of safe use associated with Issue 1 of this certificate:

Same as Issue 0.

Manufacturer's documents
Drawings associated with Issue 1 of this certificate:

Title:	Drawing No.:	Rev. Level:	Date:
MS50 Buoyancy Level Switch General Assembly and Options	MS50-0000-1	A	10/23/2013
MS50 Buoyancy Level Switch Shop Fabrication Document Hex Plug Process Connection	MS50-0005-1	D	05/17/2013
MS50 Buoyancy Level Switch Flanged Process Connection Shop Fabrication Document	MS50-0005-2	D	05/17/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-3	D	05/17/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-4	D	06/25/2013
MS50 Buoyancy Level Switch Thermoplastic Version (Flange) Shop Fabrication Document	MS50-0005-5	D	06/25/2013
MS50 Buoyancy Level Switch Shop Fabrication Document P7 Process Connection Option	MS50-0005-6	B	05/17/2013
MS50 Buoyancy Level Switch Shop Fabrication Document P7A Process Connection Option	MS50-0005-8	B	05/17/2013
Float Selection Guide	SLG-0003-1	E	7-2012
Single Compartment Housing Explosionproof / Flameproof Certification	HSG2020	D	10/16/2013
MS50 Buoyancy Level Switch for P7A Compression Process Connection	FAB2301	NC	06/25/2013
MS50 Buoyancy Level Switch for Hex Plug Process Connection	FAB2302	NC	06/25/2013
MS50 Buoyancy Level Switch For Flanged Process Connection	FAB2304	NC	06/25/2013
MS50 Buoyancy Level Switch ATEX & IEC Nametag	TAG0255	A	02/22/16
Operating Instruction Manual for MS50 Buoyancy Level Switch	OI_MS50-EN	F	10-2013