



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx EXV 20.0029X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2020-09-28

Applicant: **Nidec Industrial Solutions**
243 Tuxedo Ave.
Brooklyn Heights, OH 44131
United States of America

Equipment: **XR Series of Encoders and XRB Series of Isolators**

Optional accessory: N/A

Type of Protection: **Intrinsically safe**

Marking: Isolator XRB2 & XRB3
[Ex ia Gb] IIC / [Ex ia Db] IIIC
Encoders:
Ex ic IIC T4 Gc / Ex ic IIIC T200°C Dc
Ex ib IIC T4 Gb / Ex ib IIIC T200°C Db
Ex ia IIC T4 Gb / Ex ia IIIC T200°C Db

Approved for issue on behalf of the IECEx
Certification Body:

S D'Henin

Position:

Certification Manager

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 www.iecex.com or use of this QR Code.



Certificate issued by:

ExVeritas Limited
Units 16-18 Abenbury Way
Wrexham Ind. Est.
Wrexham LL 139UZ
United Kingdom





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Page 2 of 3

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Manufacturer: **Nidec Industrial Solutions**
243 Tuxedo Ave.
Brooklyn Heights, OH 44131
United States of America

Additional
manufacturing
locations:

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 equipment 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 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with 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/EXV/ExTR20.0045/00](#)

Quality Assessment Report:

[US/UL/QAR12.0002/07](#)



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Page 3 of 3

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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Encoder System comprises an intrinsically safe Isolator in safe area and an encoder head mounted in on the shaft of a motor in hazardous area. The two items can only be used as a 'system', but the encoder heads can also be used in a zone 2 (EPL Gc) area without the isolator.

Isolator Overview

The isolator uses an intrinsically safe barrier consisting of a fuse, crowbar circuit, a resistor and a Zener clamp. The return is via protected opto-coupler. The unit is potted in to a standard terminal enclosure with an added 'is' earth point between the terminal connections (50mm between input/output with i.s. earth terminal in center).

Encoder Overview

The encoders are made from a selection of 5 simple board combinations depending on the application. The boards in combination are effectively simple apparatus as the capacitance and inductance under mass fault are less than the permitted isolator value. In addition, the boards are potted in to a solid block and mounted in metal cases (offering ingress protection IP54).

Encoder models covered are:

XR4F	XR56A	XR485
XR5	XR67A	XR685
XR12	XR85A	XR850
XR45	XR115	XR56S
XR47	XR125	XR97

Refer to control drawings for details about entity parameters and installation requirements.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Encoders:

- When the encoder is marked as "ia Gb" or "ib Gb", it must only be used with the corresponding isolators listed in this certificate. The isolators, encoders and cable must be selected and installed in accordance with IEC/EN 60079-14 and IEC/EN 60079-25.
- When the encoder is marked as "ic", the power supply situated in safe area must be limited to the levels listed on this certificate and cable must be selected and installed in accordance with IEC/EN 60079-14 and IEC/EN 60079-25.
- The equipment should be mounted so as to avoid electrostatic charging.

Isolators:

The isolator must be installed inside of an enclosure with an appropriate mechanical strength and minimum degree of protection, IP20 for indoor locations and IP54 for outdoor locations or indoor wet locations.

Annex:

[FO-CB-34 - IECEx Certificate Annex Template_r_1.pdf](#)

Description Continued:

Entity parameters:

Zone 1 (EPL Gb) System - Um = 30 V

Zone 2 Encoder = *See parameters table

UI			
Ii	IIC	IIB	Ci
250mA	15V	25V	1.8uF
1A		15V	
5A		12V	
Zone 2			

Routine Tests:

1. None.

Technical Documents

Title:	Drawing No.:	Rev. Level:	Date:
LABEL, CERTIFICATION, ZONE 1, (ib) INTRINSIC SAFETY	B35541	F	2020/08/05
LABEL, CERTIFICATION, ZONE 2, INTRINSIC SAFETY	B35542	G	2020/09/11
LABEL, CERTIFICATION, ZONE 1, (ib) INTRINSIC SAFETY	B35543	F	2020/08/05
LABEL, CERTIFICATION, ZONE 2, INTRINSIC SAFETY	B35544	G	2020/09/11
LABEL, CERTIFICATION, ZONE 1, (ia) INTRINSIC SAFETY	B36135	B	2020/08/05
LABEL, XRB2 CERTIFICATION INTRINSIC SAFETY	B36470	E	2020/09/08
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B36613	A	2020/08/06
LABEL, CERTIFICATION, ZONE 1, (ia) INTRINSIC SAFETY	B36614	A	2020/08/05
LABEL, XRB3 CERTIFICATION ATEX / IECEx, ISOLATOR	B38155	-	2020/09/08
ATEX, XRB3, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B38157	-	2020/07/15

ATEX / IECEx CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR THINLINE GENERAL ARRANGEMENTS	D51748	C	2015/03/24
SCHEMATIC, ISOLATOR BOARD	D52586	B	2020/05/07
ATEX/IECEx, ZONE 1 & 21 INSTALLATION DRAWING	D52352	D	2020/08/06
ATEX / IECEx ZONE 2, 22 INSTALLATION DRAWING	D52353	A	2015/06/24
ATEX/IECEx, ZONE 1 & 21 INSTALLATION DRAWING	D53008	-	2020/07/21
ATEX / IECEx REPORT ON EQUIPMENT FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES FOR AVTRON INDUSTRIAL AUTOMATION ON ENCODERS AND ISOLATOR SYSTEM	GB/TRC/EXTR12/0001/00 (TES-004661-33-00A)	-	2012/06/21
ATEX / IECEx REPORT ON EQUIPMENT FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES FOR NIDEC AVTRON AUTOMATION ON ENCODERS AND ISOLATOR SYSTEM	GB/TRC/EXTR12.0001/01 (TRA-026782-33-00A)	-	2015/07/27