



1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres –
Directive 94/9/EC – Annex III

3 EC Type Examination **TRAC12ATEX0002X (incorporating variation V1)**
Certificate No.:

4 Equipment: **Ex Encoders (as listed within the schedule to this certificate) for use with
Isolator XRB1 P/N B35134 or Isolator XRB2 P/N B36071**

5 Manufacturer: **Nidec Avtron Automation Corporation,**

6 Address: **8901 East Pleasant Valley Road, Independence, Ohio 44131, USA**

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

8 TRaC Global Ltd, Notified Body number 0891 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report **TES-004661-33-00A & TRA-026782-33-00A.**

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in section 18 of the schedule to this certificate, has been assured by compliance with:

EN 60079-0:2012+A11:2013 EN 60079-11:2012

10 If the sign "X" is placed after the certificate number then this indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of this equipment or protective system shall include the following:

Isolator XRB1: Ex II (2) GD

[Ex ib IIC Gb] -40 °C ≤ T_{amb} ≤ +80 °C

[Ex ib IIIC Db]

Encoder : Ex II 2 GD

Ex ib IIC T4 Gb -40...-20 °C ≤ T_{amb} ≤ +80 °C

Ex ib IIIC T200 °C Db

Isolator XRB2 : Ex II (2) GD

[Ex ia IIC Gb] -40 °C ≤ T_{amb} ≤ +80 °C

[Ex ia IIIC Db]

Encoder : Ex II 2 GD

Ex ia IIC T4 Gb -40...-20 °C ≤ T_{amb} ≤ +80 °C

Ex ia IIIC T200 °C Db

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the TRaC Ex Certification Scheme.

S.P. Winsor

S P Winsor, Certification Manager

Issue date: 2015-07-30

Copy No.: 1e

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Form RF355 is16A

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0002X (incorporating variation V1)**

15 **General description of equipment or protective system included within the scope of this certificate**

General product information:

The Encoder System comprises an intrinsically safe Isolator in safe area and an encoder head mounted on the shaft of a motor in hazardous area. The two items can only be used as a 'system'.

The isolator XRB1 or XRB2 uses an intrinsically safe barrier circuit for input and output to the Encoders
Isolator XRB1 P/N B35134 has 'ib' outputs.
Isolator XRB1 P/N B36071 has 'ia' outputs.
Um = 250 V

The encoders are made from a selection of 5 simple board combinations depending on the application. See table below for model numbers covered by this certificate. The boards are potted into a solid block and mounted in metal cases. Note that the encoder is also available in a version designated "Sensor sub-assy". This is just the electronics element for a non-specific user supplied encoder.

Encoders and sub-assemblies		
XR4F	XR56A	XR485
XR5	XR67A	XR685
XR12	XR85A	XR850
XR45	XR115	XR56S
XR47	XR125	XR97

Ambient temperatures

All encoders and isolators, except XR485N and XR685N models:

$-40\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$

Encoders XR485N or XR685N:

$-20\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$

A list of controlled Manufacturer's Documents is given in Appendix A to this schedule.

16 **Test report No.:** **TES-004661-33-01A & TRA-026782-33-00A.**

17 **"Special Conditions of Safe Use" for Ex Equipment, if any:**

1. When the encoder is marked as "ia" or "ib", 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 EN 60079-14 and EN 60079-25.
2. The equipment should be mounted so as to avoid electrostatic charging.
3. The isolator must be installed inside of an enclosure with an appropriate mechanical strength and minimum degree of protection IP20 for indoor waterproof installations and IP54 for outdoor or not waterproof installations.

18 **Essential health and safety requirements**

Covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report listed in section 16 of this certificate.

19 **Additional information**

“Routine tests”, if any:

None.

“Special conditions for manufacture”, if any:

None.

Other information, if any:

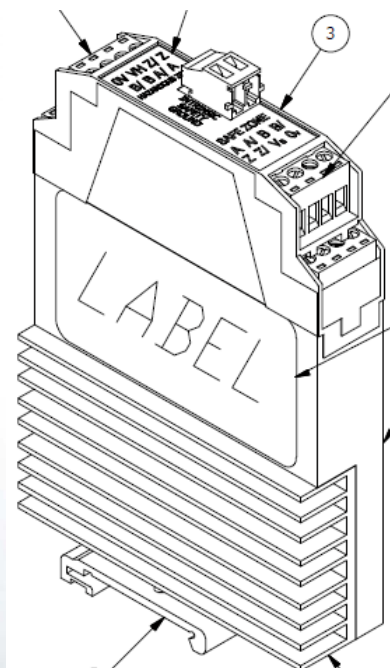
None.

Photographs

Encoder



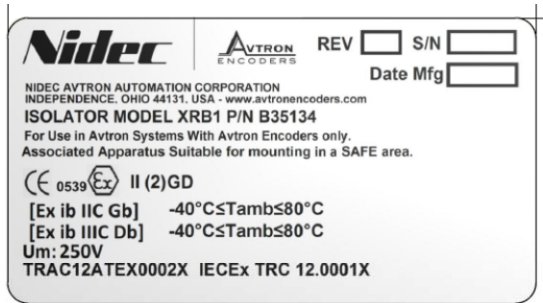
Isolator



CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0002X V1

Details of markings

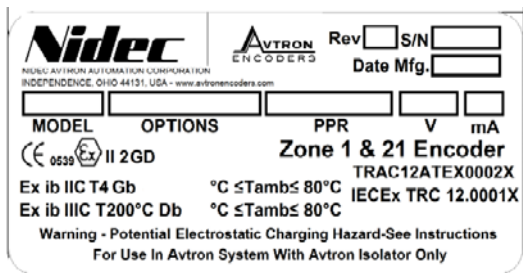
Isolator XRB1:



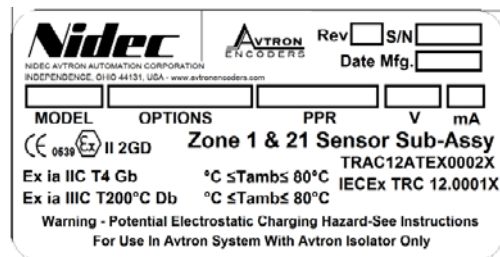
Isolator XRB2:



Encoders level "ib":

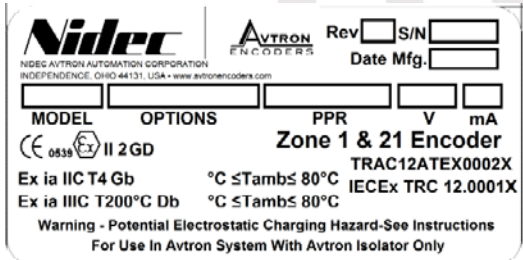


$^{\circ}\text{C} \leq \text{Tamb} \leq 80^{\circ}\text{C}$
-20 OR -40

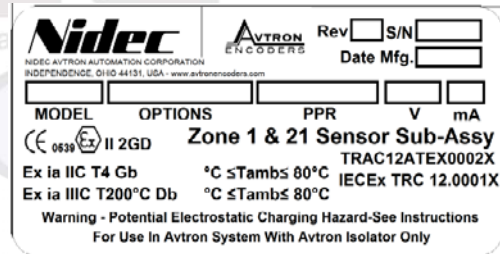


$^{\circ}\text{C} \leq \text{Tamb} \leq 80^{\circ}\text{C}$
-20 OR -40

Encoders level "ia":



$^{\circ}\text{C} \leq \text{Tamb} \leq 80^{\circ}\text{C}$
-20 OR -40



$^{\circ}\text{C} \leq \text{Tamb} \leq 80^{\circ}\text{C}$
-20 OR -40

Details of variations to this certificate

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following variations:

Variation V1 – Company name change from Avtron Industrial Automation to Nidec Avtron Automation Corporation, Addition of Isolator Model XRB2 and Encoder models XR56S and XR97. Change to latest standard to EN 60079-0:2012+A11:2013.

Notes to CE marking

In respect of CE Marking, TRaC Global Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0002X V1

Notes to this certificate

TRaC certification reference: **TRA-026782-32-00**.

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

This certificate is a consolidated certificate and reflects the latest status of the certification, including all variations.



CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0002X V1

APPENDIX A - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS

Manufacturer's Documents

Title:	Drawing No.:	Rev. Level:	Date:
LABEL, XRB1, CERTIFICATION, INTRINSIC SAFETY	B35462	G	2015/06/24
XRB1, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B35533_1	F	2014/06/17
XRB1, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR BOARD	B35533_2	F	2013/03/20
XRB1, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B35533_3	F	2012/09/24
XRB1, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B35533_4	F	2012/09/24
LABEL, CERTIFICATION ZONE 1, (ib) INTRINSIC SAFETY	B35541	E	2015/03/24
LABEL, CERTIFICATION ZONE 1 (ib), INTRINSIC SAFETY	B35543	E	2015/03/24
LABEL, CERTIFICATION ZONE 1 (ia), INTRINSIC SAFETY	B36135	A	2015/03/24
LABEL, XRB2, CERTIFICATION, INTRINSIC SAFETY	B36470	D	2015/06/24
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR	B36613_1	*	2014/09/17
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR BOARD A40143, PCB ASSEMBLY	B36613_2	*	2014/09/17
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR BOARD A40143, PCB ASSEMBLY	B36613_3	*	2014/09/17
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR BOARD CONTROLLED PARTS	B36613_4	*	2014/09/17
ATEX, XRB2, CERTIFICATION DRAWING INTRINSIC SAFETY ISOLATOR D52065 PCB	B36613_5	*	2014/09/17
LABEL, CERTIFICATION ZONE 1 (ia), INTRINSIC SAFETY	B36614	*	2015/02/04
SCHEMATIC, HAZARD AREA ISOLATOR	D50431	E	2014/06/17
ATEX / IECEx CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR THINLINE GENERAL ARRANGEMENT	D51748 – 1/12	C	2015/03/24
ATEX / IECEx CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR THINLINE GENERAL ARRANGEMENT	D51748 – 2/12	C	2015/03/24
ATEX / IECEx CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR4_SERIES GENERAL ARRANGEMENT	D51748 – 3/12	C	2015/03/24

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Title:	Drawing No.:	Rev. Level:	Date:
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR45 & XR4F GENERAL ARRANGEMENT	D51748 – 4/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR47 GENERAL ARRANGEMENT	D51748 – 5/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach SENSORS GENERAL ARRANGEMENT	D51748 – 6/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach SENSORS GENERAL ARRANGEMENT	D51748 – 7/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach MODULAR GENERAL ARRANGEMENT	D51748 – 8/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach MODULAR GENERAL ARRANGEMENT	D51748 – 9/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach SHAFTED GENERAL ARRANGEMENT	D51748 – 10/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS XR SMARTach SHAFTED GENERAL ARRANGEMENT	D51748 – 11/12	C	2015/03/24
ATEX / IECEX CERTIFICATION DRAWING INTRINSIC SAFETY ENCODERS SENSOR / LINE DRIVER SCHEMATIC	D51748 – 12/12	C	2015/03/24
SCHEMATIC ISOLATOR BOARD	D52586	A	2015/06/03
ATEX / IECEX, ZONE 1 & 21 INSTALLATION DRAWING	D52352	C	2015/06/24

*no information provided.