IECEx TEST REPORT



APPLICANT:	Nidec Conversion
ExTR REFERENCE NUMBER:	US/UL/ExTR17.0051/09
ExTR FREE REFERENCE NUMBER:	4791941710.2.1
PRODUCT:	Modular Encoders and Parts Kit
Ex TESTING LABORATORY (ExTL):	UL Solutions (US) 333 Pfingsten Road Northbrook, IL 60062 USA

IECEx TEST REPORT COVER

ExTR Reference Number.....:	US/UL/ExTR17.0051/09
ExTR Free Reference Number .....:	4791941710.2.1
Compiled by + signature (ExTL) ....:	Diane Poirier
Reviewed by + signature (ExTL)....:	Krzysztof Rymarski
Approved by + signature (ExCB) ...:	Lucy Frieders
Date of issue .....:	2025-10-15
Ex Testing Laboratory (ExTL) .....:	UL Solutions (US)
Address .....:	333 Pfingsten Road, Northbrook, IL 60062 USA
Ex Certification Body (ExCB) .....:	UL Solutions (US)
Address .....:	333 Pfingsten Road, Northbrook, IL 60062 USA
Applicant's name.....:	Nidec Conversion
Address .....:	243 Tuxedo Ave., Brooklyn Heights, OH 44131 USA
Standards associated with this ExTR package.....:	IEC 60079-0, Edition 7.0 (2017-12) + Corr. 1 (2020-01) + I-SH 01 (2019-04) + I-SH 02 (2019-06), IEC 60079-1, Edition 7.0 (2014-06) + Corr. 1 (2018-06) + I-SH 01 (2020-06), IEC 60079-11, Edition 6.0 (2011-06) + Corr. 1 (2012-01) + I-SH 01 (2014-10) + I-SH 02 (2016-07) + I-SH 03 (2016-07) + I-SH 04 (2019-04) + I-SH 05 (2019-08) + I-SH 06 (2019-12)
Clauses considered.....:	All clauses considered
Test Report Form Number .....:	ExTR Cover_10 (released 2022-10)
Related Amendments, Corrigenda or ISHs .....:	See above
Test item description .....:	Modular Encoders and Parts Kit
Model/type reference .....:	XP5*-*-*-*-* and XPH*-*-*-*-*-*-*-*
Code (e.g. Ex __ II__ T__).....:	Ex db ia IIB T4 Gb
Rating.....:	24V, 500mA, Um = 250V

ExTR Package Contents
Assembled ExTR documents and Additional reference material:
IECEx Test Report Cover
IECEx Test Report Addendum: IEC 60079-0, Edition 7.0
IECEx Test Report of National Differences: IEC 60079-0, Edition 7.0

Manufacturer's name..... :	Nidec Conversion
Address..... :	243 Tuxedo Ave., Brooklyn Heights, OH 44131 USA
Manufacturing location …….:	Nidec Conversion
Address ……...:	243 Tuxedo Ave., Brooklyn Heights, OH 44131 USA
Trademark ..... :	Nidec
Certificate No. (optional)..... :	IECEx UL 17.0049X Issue 9, DEMKO 17 ATEX 1880X Rev. 9
QAR Reference No. (optional) ..... :	US/UL/QAR12.0002/11

Particulars: Test item vs. Test requirements

Classification of installation and use ..... :	Stationary
Ingress protection .....:	N/A
Rated ambient temperature range (°C).....:	-50°C ≤ Tamb ≤ +85°C

General remarks:

The test results presented in this ExTR package relate only to the item or product tested.

- "(See Attachment #)" refers to additional information appended to the ExTR package.
- "(See appended table)" refers to a table appended to the ExTR package.
- Throughout this ExTR package, a point is used as the decimal separator.
- *Where the term "N/A" appears in any part of an ExTR package, it indicates that the associated issue was considered "Not applicable" to the involved evaluation.*
- *In accordance with IECEx 02, a Receiving ExCB may request a sample of the Ex equipment and copies of the documentation referred to in an ExTR Cover.*

The technical content of this ExTR package shall not be reproduced except in full without the written approval of the Issuing ExCB and ExTL.

Use of uncertainty of measurement for decisions on conformity (Decision rule):

No decision rule is specified by the standards associated with this ExTR package, when comparing the measurement result with the applicable limit according to the specification in these standards. The decisions on conformity are made without applying the measurement uncertainty as described in IECEx OD 012 (i.e., "simple acceptance" decision rule, previously known as "accuracy method").

In accordance with US government regulations, this Test Report cannot be used to support national certification in a country that is the subject of a comprehensive US trade embargo.

For a list of countries subject to a comprehensive trade embargo, as well as a list of countries subject to more limited trade sanctions, see https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information.

This ExTR Package was created using the HazLoc Document Generator Rev. 39.

General product information:

The XP5 is a series of magnetic flameproof and intrinsically safe encoders designed for rotational sensing. The equipment is comprised of two compartments, and flameproof enclosure housing the galvanic isolator (associated apparatus) and drive electronics, and a second compartment containing the intrinsically safe sensor circuitry. The flameproof enclosure of the XP5 is comprised of the housing and cover, secured together by four metal M5 cover screws. Encapsulation is provided within the flameproof enclosure and completely fills the intrinsically safe compartment.

The XPH is an assembly of components including the series XP5 sensor, rotor, adapter bracket/housing, adapter housing cover, and sensor cover.

Nomenclature:

I	II	III	IV	V	VI
XP5	2	6	AY	A	000

I – Model Designation	Code	Description
	XP5	
II - Style		
	* -	Rotor Size and Adapter Configuration
III - Line Driver		
	2 -	5 to 24V in / OC out
	6 -	5 to 24V in / 5 to 24V out
	8 -	5 to 24V in / 5 to 24V out high power
IV- PPR Left		
	** -	Pulse Per Revolution to Drive
V - Connector		
	** -	M25, ½ NPT, ¾ NPT Connection on the Left, Right, or Both Sidewalls of Housing
VI - Mod Code		
	*** -	Optional Features

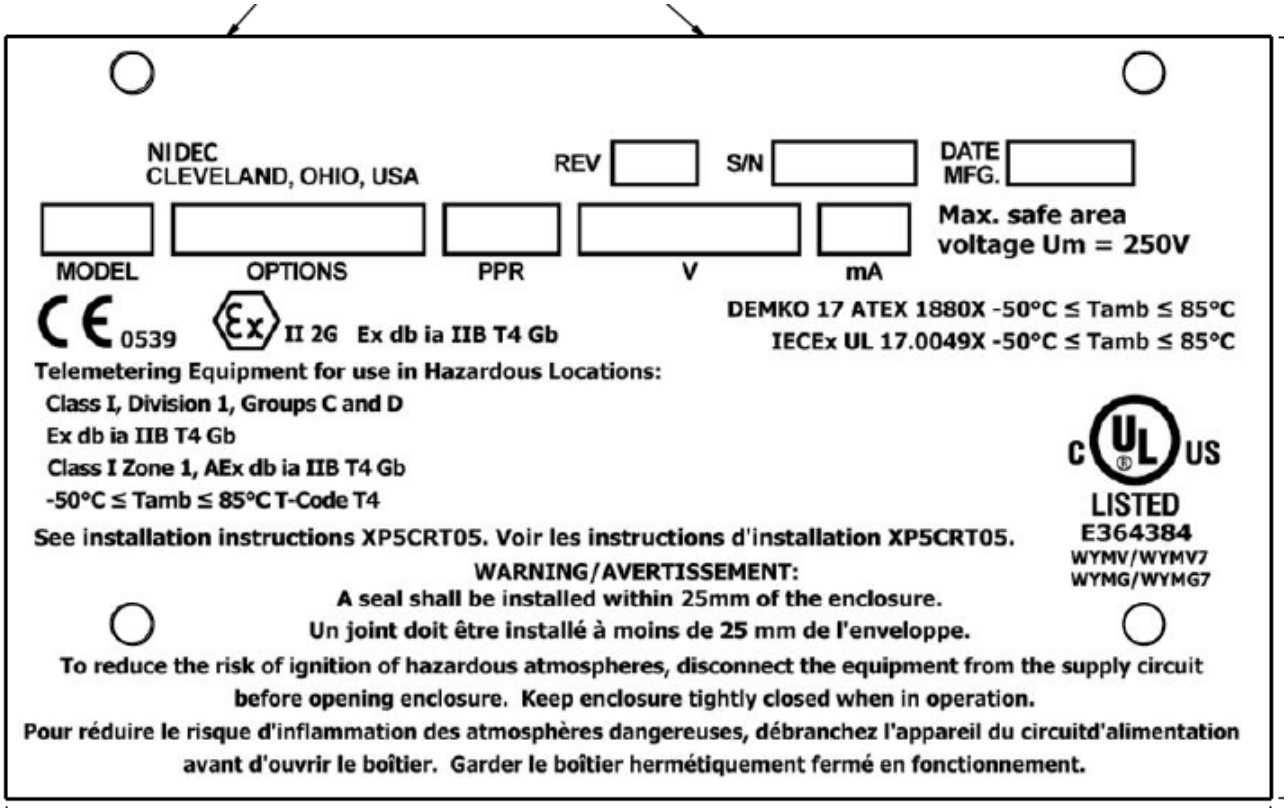
I	II	III	IV	V	VI	VII	VIII	IX
XPH	1	TM	F	6	AY	AY	A	000

I – Model Designation	Code	Description
	XPH	
II - Style		
	* -	Rotor Size and Adapter Configuration
III – Rotor Type & Size		
	** -	Rotor Bore Size and Connection to Shaft
IV – Housing Cover Type		
	* -	XPH Cover Configuration
V – Line Driver		
	2 -	5 to 24V in / OC out
	6 -	5 to 24V in / 5 to 24V out
	8 -	5 to 24V in / 5 to 24V out high power
VI – PPR Left		
	** -	Pulse Per Revolution
VII – PPR Right		
	** -	Pulse Per Revolution
VIII – Connector		
	** -	M25, ½ NPT, ¾ NPT Connection on the Left, Right, or Both Sidewalls of Housing
IX – Mod Code		
	*** -	Optional Features

* - A single number or letter
** - Any two-digit combination of numbers and letters
*** - Any three-digit combination of numbers and letters

Details of change (applicable only when revising an existing ExTR package):
Update company name to Nidec Conversion

Copy of Marking Plate:



Details regarding 'trade agent' / 'local assembler' application in accordance with OD 203:

N/A

Testing not fully performed by ExTL staff at the above ExTL address:

N/A

Accreditation details:

This test report does not contain any testing. Therefore, the ATEX EU Type Examination Certificate can continue to be issued as accredited.

National differences considered as part of this evaluation:

This equipment also complies with the requirements of EN IEC 60079-0:2018, EN IEC 60079-0:2018/AC:2020 and EN IEC 60079-0:2018/A11:2024, EN 60079-1:2014 and EN 60079-11:2012.
The differences between IEC 60079-0, Edition 7 and EN IEC 60079-0:2018, EN IEC 60079-0:2018/AC:2020 and EN IEC 60079-0:2018/A11:2024 are covered in the IECEx Test Report of National Differences.
The revision does not affect any national differences between IEC 60079-1, Edition 7 and EN 60079-1:2014 or IEC 60079-11, Edition 6 and EN 60079-11:2012.

Specific Conditions of Use / Schedule of Limitations:

This product has no user serviceable parts. Care must be taken during use to ensure that flameproof joints on the Cover and Housing are not damaged. Repair of flameproof joints is not permissible. Contact Nidec Conversion for dimensions of flameproof joints.

The circuits shall be limited to overvoltage category I/II/II as defined in IEC/EN 60664-1.

The four screws that secure the XP5 cover onto the XP5 enclosure require the minimum tensile strength shown below:

MATERIAL	GRADE	MINIMUM TENSILE STRENGTH
A2 Stainless Steel	A-70	700 MPa (101.5 KSI)
A4 Stainless Steel	A-80	800 MPa (116.0 KSI)
Carbon Steel	8.8	800 MPa (116.0 KSI)
Alloy Steel	12.9	1220 MPa (176.9 KSI)

Protect the cover seal from sunlight during storage and installation.

Routine tests:

N/A

Date(s) of performance for all testing:

N/A

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Certification Drawing Top Level	XP5CRT01	B	2020-05-06
Certification Drawing Mechanical Requirements	XP5CRT02	E	2023-04-25
Certification Drawing ID Plate	XP5CRT03	D	2025-02-28
Certification Drawing Transformer	XP5CRT04	A	2022-03-17
Certification Drawing User Instructions	XP5CRT05	C	2025-02-28
Schematic, Sensor Board	XP5CRT11	A	2019-06-14
Layout and BOM, Sensor Board	XP5CRT21	-	2017-09-07
Schematic, Sensor Daughter PCB	XP5CRT12	-	2017-09-29
Layout and BOM, Sensor Daughter PCB	XP5CRT22	-	2017-09-08
Schematic, Interconnect PCB	XP5CRT13	-	2017-09-29
Layout and BOM, Interconnect PCB	XP5CRT23	-	2017-09-12
Schematic, Galvanic Isolator/Driver PCB	XP5CRT14	A	2019-06-14
Layout and BOM, Galvanic Isolator/Driver PCB	XP5CRT24	A	2019-06-28
Schematic, Galvanic Isolator AUX PCB	XP5CRT15	-	2017-09-29
Layout and BOM, Galvanic Isolator AUX PCB	XP5CRT25	A	2019-06-28
Schematic, Terminal Block PCB	XP5CRT17	-	2017-09-29
Layout and BOM, Terminal Block PCB	XP5CRT27	-	2017-09-11

*Note: An * is included before the title of documents that are new or revised.*

Separately Certified Equipment/Components Included in Test Item Description:					
Part Type	Manufacturer	Model/Type	Certificate No. (include Rev. and/or Issue numbers for certificates)	Ex Marking String	Standard(s) and date(s)/edition(s)
Line Bushing	Quintex GmbH	LBP116106 LBP116206 LBP116306 LBP116107 LBP116207 LBP116307 LBP116108 LBP116208 LBP116308	IECEx EPS 11.0004X Issue 6	Ex db IIC T4/T5/T6 Gb	IEC 60079-0, Ed. 7 IEC 60079-1, Ed. 7
			EPS 11 ATEX 1 342 X Revision 10		EN IEC 60079-0:2018 EN 60079-1:2014

IECEx TEST REPORT ADDENDUM

ExTR Reference Number ..... :	US/UL/ExTR17.0051/09	
ExTR Free Reference Number ..... :	4791941710.2.1	
Compiled by + signature (ExTL) .... :	Diane Poirier	See IECEx Test Report Cover
Reviewed by + signature (ExTL) .... :	(enter typed name here)	See IECEx Test Report Cover
Date of issue ..... :	See IECEx Test Report Cover	
Ex Testing Laboratory (ExTL) ..... :	UL Solutions (US)	
Address ..... :	333 Pfingsten Road, Northbrook, IL 60062 USA	
Applicant's name ..... :	Nidec Conversion	
Address ..... :	243 Tuxedo Ave., Brooklyn Heights, OH 44131 USA	
Standards ..... :	IEC 60079-0: Edition 7.0	
Test Report Form Number ..... :	ExTR Addendum_3 (released 2018-02)	
Related Amendments, Corrigenda or ISHs ..... :	See IECEx Test Report Cover	

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Possible test case verdicts:

- test case does not apply to the test item.....:N/A

- test item does meet the requirement……..:Pass

General remarks:

The test results presented in this ExTR Addendum relate only to the item or product tested and are only valid when considered together with the related Ex Test Report that was previously issued, along with any previously issued ExTR Addendums for the same item or product.

Only clauses and manufacturer's documents impacted by this document are detailed.

- "(see Attachment #)" refers to additional information appended to this document.
- "(see appended table)" refers to a table appended to this document.
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Clause	Requirement – Test	Result – Remark	Verdict
IEC 60079-0: Edition 7.0			
24	Documentation	Manufacturer has provided the correct documentation	Pass
28.1	Conformity with the documentation	Manufacturer is aware of responsibility	Pass
28.2	Certificate	Manufacturer is aware of responsibility	Pass
28.3	Responsibility for making	Manufacturer is aware of responsibility	Pass
29	Marking	Considered as such	Pass

Measurement Section, including Additional Narrative Remarks (as deemed applicable)
N/A

IECEx TEST REPORT of NATIONAL DIFFERENCES

ExTR Reference Number ..... :	US/UL/ExTR17.0051/09	
ExTR Free Reference Number ..... :	4791941710.2.1	
Compiled by + signature (ExTL) .... :	Diane Poirier	See IECEx Test Report Cover
Reviewed by + signature (ExTL) .... :	Krzysztof Rymarski	See IECEx Test Report Cover
Date of issue ..... :	See IECEx Test Report Cover	
Ex Testing Laboratory (ExTL) ..... :	UL Solutions (US)	
Address ..... :	333 Pfingsten Road, Northbrook, IL 60062 USA	
Applicant's name ..... :	Nidec Conversion	
Address ..... :	243 Tuxedo Ave., Brooklyn Heights, OH 44131 USA	
Country/Region ..... :	Europe: Switzerland (CH), Czech Republic (CZ), Germany (DE), Denmark (DK), Finland (FI), France (FR), United Kingdom (GB), Hungary (HU), Italy (IT), the Netherlands (NL), Norway (NO), Romania (RO), Sweden (SE) and Slovenia (SI)	
Standards ..... :	IEC 60079-0: Edition 7.0	
Test procedure ..... :	IECEx System	
Test Report Form Number ..... :	ExTR National Differences_3 (released 2018-02)	

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Possible test case verdicts:

- test case does not apply to the test item..... : N/A

- test item does meet the requirement..... : Pass

General remarks:

This equipment also complies with the requirements of:

EN IEC 60079-0:2018
EN IEC 60079-0:2018/AC:2020
EN IEC 60079-0:2018/A11:2024

The test results presented in this ExTR of National Differences relate only to the item or product tested. Only clauses and manufacturer's documents impacted by this document are detailed.

- "(See Attachment #)" refers to additional information appended to this document.
- "(See appended table)" refers to a table appended to this document.
- Throughout this document, a point is used as the decimal separator.
- ESRs relating to National Differences for UKEx certification are identified in italicized numbering format.

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Clause	Requirement – Test	Result – Remark	Verdict
EN IEC 60079-0:2018			
Annex ZA (Normative)	Normative references to international publications with their corresponding European publications	Additional normative references considered.	Pass
Annex ZY	Additional information relating to the European ATEX Directive 2014/34/EU	Information related to European ATEX Directive 2014/34/EU considered.	Pass
Annex ZY	ZY.1, Equipment Groups and Categories	The device is marked II 2 G.	Pass
Annex ZY	ZY.2, Instructions	The manufacturer has prepared instructions for use in the required community.	Pass
Annex ZY	ZY.3, Marking		
Annex ZY	ZY.3.1	The marking according to this standard is supplemented by the marking according to Directive 2014/34/EU.	Pass
Annex ZY	ZY.3.2 Contrary to 29.3 a) the marking is to always include the manufacturer's name and address. The address is to be sufficient to identify the physical location of the	The device is marked with the manufacturer's name and address such that mail can be delivered.	Pass

Clause	Requirement – Test	Result – Remark	Verdict
	manufacturer. An address used for postal purposes, without identifying the physical location, is not sufficient.		
Annex ZY	ZY.4, Fans Clause 17.2.5 “Room ventilating fans” is to be supplemented by the requirements given in EN 14986 “Design of fans working in potentially explosive atmospheres.”	The device is not a fan.	N/A
Annex ZY	ZY.5 Significant changes between this European Standard and EN 60079-0:2012+A11:2013	No evaluation is necessary since the device was not previously certified to EN 60079-0:2012+A11:2013.	N/A
Annex ZZ	Relationship between this European Standard and the Essential Requirements of 2014/34/EU [2014 OJ L96] aimed to be covered		
Annex ZZ	Correspondence between this European Standard and Annex II of Directive 2014/34/EU [2014 OJ L96]	Clauses 1.0.1 indent 2, 1.0.2-1.0.6, 1.1, 1.2.1, 1.2.2, 1.2.4, 1.2.6, 1.2.7, 1.3.1-1.3.3, 1.4, 1.6.4, and 2.0-2.3 are covered by IEC 60079-0 ExTR.	Pass
Annex ZZ	ESR 1.0.1, indents 1 and 3	The device is designed from the point of view of integrated explosion safety.	Pass
Annex ZZ	ESR 1.2.3	The device does not release flammable gases or dusts.	N/A
Annex ZZ	ESR 1.2.5	The device can withstand relevant stresses without adverse effect on explosion protection.	Pass
Annex ZZ	ESR 1.2.8	The device is properly protected from overloading.	Pass
Annex ZZ	ESR 1.2.9	The device is certified as flameproof “db”.	Pass
Annex ZZ	ESR 1.3.4	The device was designed to prevent overheating causes by friction or impacts.	Pass
Annex ZZ	ESR 1.3.5	The device does not perform pressure compensation operations.	N/A
Annex ZZ	ESR 1.5.1	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.2	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.3	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.4	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.5	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.6	The device is not a safety related device.	N/A

Clause	Requirement – Test	Result – Remark	Verdict
Annex ZZ	ESR 1.5.7	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.5.8	The device is not a safety related device.	N/A
Annex ZZ	ESR 1.6.1	The device is not a system.	N/A
Annex ZZ	ESR 1.6.2	The device is not a system.	N/A
Annex ZZ	ESR 1.6.3	The device is not a system.	N/A
Annex ZZ	ESR 1.6.5	The device is not a system.	N/A
Annex ZZ	ESR 3.0.1	Not a protective system	N/A
Annex ZZ	ESR 3.0.2	Not a protective system	N/A
Annex ZZ	ESR 3.0.3	Not a protective system	N/A
Annex ZZ	ESR 3.0.4	Not a protective system	N/A
Annex ZZ	ESR 3.1.1	Not a protective system	N/A
Annex ZZ	ESR 3.1.2	Not a protective system	N/A
Annex ZZ	ESR 3.1.3	Not a protective system	N/A
Annex ZZ	ESR 3.1.4	Not a protective system	N/A
Annex ZZ	ESR 3.1.5	Not a protective system	N/A
Annex ZZ	ESR 3.1.6	Not a protective system	N/A
Annex ZZ	ESR 3.1.7	Not a protective system	N/A
Annex ZZ	ESR 3.1.8	Not a protective system	N/A
EN IEC 60079-0:2018/AC:2020			
26.5.1.1	General Additional text after Note 1	Previous testing was not affected by the update	N/A
EN IEC 60079-0:2018/A11:2024			
European foreword	(dop) 2025-01-16 (dow) 2027-01-17	Noted	N/A

Measurement Section, including Additional Narrative Remarks (as deemed applicable)
N/A