



# 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](http://www.iecex.com)

Certificate No.:	<b>IECEX ITS 10.0016X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 5	Issue 4 (2020-03-27)
Date of Issue:	2023-02-20		Issue 3 (2017-10-05)
Applicant:	<b>Scancon Encoders A/S</b> Huginsvej 8 3400 Hilleroed Denmark		Issue 2 (2017-06-20)
Equipment:	<b>Optical Encoder type EXAG-A*, EXAG-H*, EX78-A* and EX78-H*</b>		Issue 1 (2015-10-21)
Optional accessory:			Issue 0 (2010-10-19)
Type of Protection:	<b>Flameproof enclosure 'd' and Dust Protection by enclosure 'tb'</b>		
Marking:	Ex db IIC T5 Gb Ex tb IIIC T100°C Db  -40°C ≤ Tamb ≤ +70 °C  IECEX ITS 10.0016X  * Upper ambient can be any value between +20°C and +70°C to meet customer requirements		

Approved for issue on behalf of the IECEx  
Certification Body:

**P Moss**

Position:

**Certification Officer**

Signature:  
(for printed version)

Date:  
(for printed version)

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](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

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



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Issue No: 5

Manufacturer: **Scancon Encoders A/S**  
Huginsvej 8  
3400 Hilleroed  
Denmark

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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

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 Reports:

[GB/ITS/ExTR10.0009/00](#)  
[GB/ITS/ExTR15.0019/02](#)

[GB/ITS/ExTR15.0019/00](#)  
[GB/ITS/ExTR15.0019/03](#)

[GB/ITS/ExTR15.0019/01](#)

Quality Assessment Report:

[GB/EXV/QAR17.0015/04](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The Optical Encoders EXAG are small flameproof enclosures containing electronics. The encoder housing is manufactured from stainless steel, acid proof stainless steel or aluminium with a drive shaft in one end shield. The shaft can be either solid type shaft (EXAG-A) or hollow type shaft (EXAG-H). The body makes one cylindrical joint with the drive end shield on another side. Each end shield (the drive end and the non-drive end) is secured to the body with six M4 or four M8 counter bored socket head cap screws. O-rings are fitted to each cylindrical joint. There is a shaft seal on drive end shield, where two ball bearings are mounted to the cylindrical joint between the shaft and the drive end shield. The encoder housing can be provided with up to four M20x1.5, M25x1.5, 1/2"NPT or 3/4"NPT threaded entries on the non-drive end shield. These threaded entries are closed with the suitable separately IECEx certified cable glands. All unused entries must be closed with suitable separately IECEx certified blanking elements. The apparatus is rated at 300 mA maximum current and voltage range from 4.5V dc to 30V dc.

Rated speed for type variants with seal max 3000 rpm, without seal max. 6000 rpm.

Max. permissible load on the shaft: axial 60N and 80N radial.

Additionally the encoders meet IP64/65/66/67/68 in accordance with EN 60529.

Type EX78 models are identical to the Type EXAG models but with new Scancon Profibus electronics which includes a single cell XL-050H back-up battery.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

- It is a condition of certification that the flame paths have to comply with the manufacturers drawings and can only be repaired by the manufacturer.
- It is a condition of certification that the precautions must be taken to avoid dust from forming layers on the encoder.
- The fasteners used to secure enclosure body to end shields shall have a minimum yield stress of 450 MPa.
- Use only suitably certified Ex db IIC Gb and Ex tb III C Db cable glands, thread adapters and blanking elements.



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

### Issue 1:

- Change of address from "Tranevang 1, 3450 Allerød, Denmark" to "Huginsvej 8, DK-3400, Hillerød, Denmark".
- Extend the ambient temperature range to -40°C.
- Upgrade to IEC 60079-0 Edition 6, IEC 60079-1 Edition 7 & IEC 60079-31 Edition 2.

### Issue 2:

- Inclusion of new type of rotary seal.
- Increase in maximum gap of both end cover cylindrical joints from 0.08mm to 0.1mm.
- Minor drawing changes not compromising the IECEx certification.

### Issue 3:

- Change of QAR from DE/TUN/QAR12.0002/02 to GB/EXV/QAR17.0015/00.

### Issue 4:

- Addition of new Profibus electronics (including internal battery) in versions absolute or dual by means of a combination of absolute and incremental outputs – Type EX78 models only.
- Addition of SIL2 electronics - Type EXAG only.
- Change of diameter/tolerance of housing/shaft flamepath.
- Update from IEC 60079-0:2011 Ed 7 to IEC 60079-0:2017 Ed 7.
- Addition of laminate covering over marking labels.
- Minor drawing changes not compromising the IECEx certification.

### Issue 5:

- Change of battery from Type PT-2150HT to Type XL-050H.
- To allow flexible upper ambient temperature.
- Addition of alternative label material.

## Annex:

[IECEX ITS 10.0016X Iss 5 - Annex for IECEx Certificate of Conformity.pdf](#)



## Annex to IECEx Certificate of Conformity

<b>Certificate No:</b>	<b>IECEX ITS 10.0016X</b>	<b>Issue No. 5</b>
<b>Annex No. 1</b>		

<b>Technical Documents</b>			
Title:	Drawing No.:	Rev. Level:	Date:
Certification dwg Housing EXAG/EXME Ex dwg	00231007C	1	06-11-2019
Certification drawing – H. shaft/shaft Ø17 EXAG/EXME Ex dwg	00231215C	1	06-11-2019
Certification dwg – Cover Tube EXAG/EXME Ex dwg	00132213C	4	17-05-2017
Certification drawing – H. shaft/shaft Ø30 EXAG/EXME Ex dwg	00231216C	1	06-11-2019
Certification dwg – EXAG Back Cover Ex dwg	00132216C	4	17-05-2017
Encoder type EXAG/EXME “k” calculation Ex-dwg	00241010	1	06.11.2019
Encoder type EXAG/EXME “m” calculation Ex-dwg	00241011	1	06.11.2019
Certification drawing – EXAG Back Cover, Internal External Earthing Ex dwg	80230175C	2	17-05-2017
Certification drawing – EXAG/EXME Enclosure Ex dwg	90231218C	1	06-11-2019
Ring Cable Shoe Yellow – M4	06300054	1	09-07-2013
Allen Screw M4x25 ISO4762 A2-70	07130026	2	17-05-2017
Allen screw M4x12 ISO4762 A2-70	07130059	3	18-10-2012
Allen Screw M4x35 ISO4762 A2-70	07130063	3	18-10-2012
Allen screw M4x50 ISO4762 A4-80	07130074	3	17-05-2017
Allen screw M4x12 ISO4762 A4-80	07130094	3	17-05-2017
Allen screw M4x35 ISO4762 A4-80	07130097	4	17-05-2017
Allen screw M4x25 ISO4762 A4-80	07130102	2	17-05-2017
Allen screw M4x55 ISO4762 A4-80	07130103	2	17-05-2017
EXAG.. Adresse label 100x23 Ex-dwg.	00141742	2	05.01.2015
Warning Label for mining and surface Ex-dwg.	00241009	1	11.12.2018
*PCB SC0713 component and layout details – Absolute Profibus and dual EX78 (absolute/incremental) encoder.	00241242	2	06-12-2022
*SC0713 Decoupling – Various	00241243	2.0	03-02-2023
Certification drawing – Rotary-Shaft Seal	00230847C	1	18-01-2018
Certification drawing – O-ring Ex dwg	00230849C	1	16-01-2018
EXAG Ordering Code Ex-dwg.	00240166	2	17.03.2017
EX78 Ordering Code Ex-dwg.	00241220	1	06.11.2019
*EXAG Marking Label 90x48 Ex-dwg.	00241221	2	09.02.2023
*EXAG Marking Label 100x23 Ex-dwg.	00241222	2	09.02.2023
*EXAG Marking label 100x35 Ex-dwg.	00241223	2	09.02.2023
*Type EXAG Installation Guide (4 pages)	00241224	2	09 Feb. 2023
*Type EX78 Installation Guide (4 pages)	00241231	2	09 Feb. 2023
EXAG Warning label Ex-dwg.	00240523	3	16.01.2020

Certificate issued by:



**Intertek Testing and Certification Ltd**  
 Intertek, Cleeve Road,  
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 UK

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SFT-IECEX-OP-19f (26 October 2018)



## Annex to IECEx Certificate of Conformity

<b>Certificate No:</b>	<b>IECEX ITS 10.0016X</b>	<b>Issue No. 5</b>
<b>Annex No. 1</b>		

<b>Technical Documents</b>			
<b>Title:</b>	<b>Drawing No.:</b>	<b>Rev. Level:</b>	<b>Date:</b>
Allen screw M8x1,25 25mm long DIN 912 A4-80	07160027	3	04-12-2013
Allen screw M8x50 ISO4762 A4-80	07160028	3	17-05-2017
Allen screw M8x80 ISO4762 A4-80	07160029	2	17-05-2017
Allen screw M8x1,25 45mm long DIN 912 A4-80	07160030	3	04-12-2013

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