



EX78-Hollow Shaft



EX78 - Shaft



## Installation guide

This Installation Manual is valid only for encoder types EX78.




For your safety please read this guide carefully.

Failure to follow the instructions in this guide will render **ALL** certifications **INVALID**.

### 1. Installation

Installation of the encoder must be completed by a skilled technician or engineer. Failure to comply with the instructions below will render all certifications **INVALID**. **The encoder may not be modified by the customer.**

- 1.1. Insure that power is off.
- 1.2. Connect to earth prior to proceeding  -

Observe precautions for handling **ESD** (ElectroStatic Discharge) sensitive devices.

Protective Earthing Method:

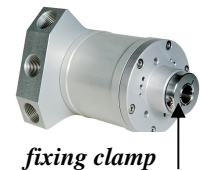
INTERNAL: The internal grounding terminal shall be used for the equipment grounding connection. Earth connection can be provided by a RED ring terminal(s) (red cable shoe) screwed to the PCB inside the encoder removable connection cap. Terminal(s) AWG size is 22-16 AWG.

EXTERNAL: The external terminal is for a supplementary bonding connection where local codes or authorities permit or require.

Earth connection can be provided by YELLOW ring terminal (cable shoe) which is screwed to the chassis. Terminal AWG size is 12-10.

See Product Specification for details on [www.scancon.dk](http://www.scancon.dk)


- 1.3. When installing the Hollow Shaft encoder, check that the encoder fixing clamp is loose. Then slide the encoder hollow bore over the motor shaft (or other device).
- 1.4. Align encoder spring coupling or torque arm mounting hole(s) with motor face plate hole(s). Insert screws into mounting holes and tighten.
- 1.5. Tighten fixing clamp M3 screw (maximum 1.5 Nm (1.12 lbft) torque).
  - Points 6 to 14 concerns the encoder without fixed cable!
- 1.6. Use **only shielded cable**. Temperatures at the cable entry can reach 85 °C. Selection of cable must be appropriate for the ambient temperature range in which the product is used.
- 1.7. Use **only** suitably certified cable glands (or blind plug, if no cable is attached) minimum rated for these applications or superior (see marking below). Cable entry threads are M20 x 1,5; M25 x 1,5; ½" NPT; ¾" NPT. The encoder housing can be provided with up to four of them on the non-drive end shield.



Each entry shall have no more than one thread adapter when an adaptor is used. A blanking element shall not be used with an adapter.

- 1.8. Assemble cable through Ex-Proof Cable Gland be sure approx. 3 inches (76 mm) of wire extend completely through gland.
- 1.9. Remove the protective plastic insert(s) from the cable gland outlet(s). This must be done prior to final installation.
- 1.10. Remove End Cap from encoder.
- 1.11. Push wires through Cable Gland and the exterior End Cap hole.
- 1.12. Screw Cable Gland into the End Cap and tighten.  
Estimate required wire length needed for insertion into Terminal Blocks. **NOTE** – *wire lengths will vary depending on which terminal they will be inserted into.*
  - **WARNING: Do not tighten the Ex-proof cable gland while the encoder is attached to the shaft. Excessive torque may result in damage to the encoder ball bearings.**
- 1.13. Cut wires to proper lengths and insert into terminals.
- 1.14. Attach End Cap to encoder and tighten screws; M4 – 3,5 Nm +/- 0,1 Nm; M8 – 30 Nm.
- 1.15. Connect encoder Circuit Ground (GND).
- 1.16. Connect remaining Output wires to PLC. Then apply power (**insure the Supply Voltage is correct!**).
- 1.17. If used, safety screws in the Removable End Cap shall have a minimum yield stress of 450 MPa.
- 1.18. Precautions must be taken to avoid dust from forming layers on the encoder.
- 1.19. It is strongly recommended that the original packaging be used for any additional shipping or transport.

#### Caution / Warning:

- **DO NOT connect encoder when power is on.**
- **DO NOT connect output wires to supply voltage.**
- **WARNING: Do not open when an explosive atmosphere is present!**  
AVERTISSEMENT: Ne pas ouvrir en présence d'une atmosphère explosive!
- **Caution- Hot surface.**  
Attention - surface chaude. 
- **DO NOT strike encoder with hammer or any other heavy object.**
- **WARNING: Open circuit before removing End Cap. Keep End Cap tight while circuits are alive!**
- **WARNING: This primary backup battery is intended for use in applications subject to replacement only by a trained service technician.**
- **No user replaceable items inside – including internal backup battery!**  
Aucun utilisateur les éléments remplaçables à l'intérieur!
- **WARNING: Potential electrostatic charging hazard - see instruction!**  
AVERTISSEMENT: Risque de formation d'un potentiel électrostatique - voir instructions!  
**To minimize the risk from electrostatic discharge - clean only with a damp cloth.**
- **WARNING: A seal shall be installed within 50mm of the enclosure.**

AVERTISSEMENT: Un scellement doit être installé à moins de 50 mm du boîtier.

- **WARNING : Temperatures at the branching point can reach 85°C. Selection of cable must be appropriate for the ambient temperature range in which the product is used !**

AVERTISSEMENT: La Température au point de branchement peut monter jusqu'à 85 ° C. La sélection du câble et presse-étoupe, doit être approprié, à la plage de température ambiante dans laquelle le produit est utilisé !

- **If encoder is mounted to electrical machinery with high current or high voltage on the shaft, precautions must be taken for galvanic separation.**
- **Maintenance is not necessary. Any required maintenance or repair is to be done only by the manufacturer.**
- **Note: this equipment is suitable for use in Class I, Division 2, groups ABCD or Class II, Division 2, groups FG or non-hazardous locations only!**
- **Use only fasteners with a minimum yield stress of 450 Mpa.**

Utilisez uniquement des fixations avec une limite d'élasticité minimale de 450 MPa.

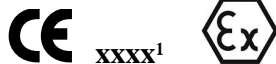
- **Only suitably certified cable glands, fittings, and/or blind plugs may be used.**  
Seulement convenablement certifié presse-étoupes, raccords et / ou bouchons peuvent être utilisés.

## 2. Electrical ratings:

See Product Specification for details on [www.scancon.dk](http://www.scancon.dk)

## 3. Marking:

ATEX/IECEX



Ex db IIC T5 Gb  
Ex tb IIIC T100°C Db  
Tamb= -40°C to +70°C  
II 2G Ex db IIC T5 Gb  
II 2D Ex tb IIIC T100°C Db  
Tamb= -40°C to +70°C



1) It is place for the specific number for the QAN issuer.

## North America:



File no. LR1192

Class I Div. 2 Groups ABCD T5  
Class II Div. 2 Groups FG  
Class I Zone 1, AEx db IIC T5 Gb  
Ex db IIC T5 Gb  
Zone 21, AEx tb IIIC T100°C Db  
Ex tb IIIC T100°C Db  
Tamb= -40°C to +70°C

Additionally, the encoders meet IP64/65/66/67/68 (1hour/1 meter) in accordance with EN 60529.

**EX78:**

ITS09ATEX16867X

IECEX ITS 10.0016X

QPS Certificate of Compliance (North America) is under file no. LR1192

See certifications at [www.scancon.dk](http://www.scancon.dk)

**4. The encoder complies with the following standards:**

IEC 60079-0: 2017 Ed.7/ EN 60079-0: 2018	Explosive atmospheres - Part 0: Equipment – General requirements
IEC 60079-1: 2014-06 Ed.7/ EN 60079-1: 2014	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31: 2013 Ed.2/ EN 60079-31: 2014	Electrical apparatus for use in the presence of combustible dust - Part 0: General Requirement
CSA 61010-1-12 3 <sup>rd</sup> . ed	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements.
CSA C22.2 No.213-2017	Non-incentive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.
CSA 60079-0:19	Explosive Atmospheres – Part 0: Equipment General Requirements
CSA 60079-1:16	Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d".
CSA 60079-31:16	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t".
ANSI/UL 121201 3 <sup>rd</sup> ed.	Nonincendive Electrical Equipment for Use in Class I and II, Division 2
UL 60079-0 7 <sup>th</sup> ed.	Explosive Atmospheres – Part 0: Equipment General Requirements.
UL 60079-1 7 <sup>th</sup> ed.	Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d"
UL 60079-31 2 <sup>nd</sup> ed.	Part 31: Equipment dust ignition protection by enclosure "t"
UL 61010-1-12 3 <sup>rd</sup> . ed	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements.

*NOTE: Adding/removing data or changing the layout of this document, which does not conflict with the actual data and QPS, ATEX/IECEX certification, does not need to be notified by Certification Body, as well as the new revision number following the changes.*