

# EU-TYPE EXAMINATION CERTIFICATE



[1]

[2]

**Equipment or Protective System intended for use  
in Potentially Explosive Atmospheres  
Directive 2014/34/EU**

[3]

EU-Type Examination Certificate Number: **DEMKO 02 ATEX 133213X Rev. 3**

[4]

Product: **AX 700 & IX 700 Shaft Encoders**

[5]

Manufacturer: **W + S Meßsysteme GmbH**

[6]

Address: **Humboldtstraße 11, 78549 Spaichingen, Germany**

[7]

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8]

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential report no. **4788887729.1.1**

[9]

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0:2018      EN 60079-1:2014      EN 60079-31:2014**

[10]

If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11]

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12]

The marking of the product shall include the following:

I M2      **Ex db I Mb**  
 II 2 G      **Ex db IIC T4 Gb**  
 II 2 G      **Ex db IIC T6 Gb**  
 II 2 D      **Ex tb IIIC T70°C Db**

## Certification Manager

Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

**Date of issue:** 2003-01-16

**Re-issued:** 2019-03-21



## Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark  
Tel. +45 44 85 65 65, [info.dk@ul.com](mailto:info.dk@ul.com), [www.ul.com](http://www.ul.com)

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## Schedule

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#### Description of Equipment or protective system

The AX 700 and IX 700 shaft encoders are rotating electrical devices, monitoring speed control, rotor angular or length movement as part of a feedback control system used in industrial applications. The shaft is provided with an encoder disc, which has an optoelectronic pick up and conditioning circuit fixed to the body above the rotating disc.

The encoders consist of an overall cylindrical threaded lid provided with and axial cable entry point in the back accepting cable glands in the range from M12, M16 & M20. The shaft (options: solid or hollow) rotate in the body which is screwed into the overall cylindrical housing lid forming the encoder. All parts are made of machined stainless steel.

Nomenclature for the XX 700 abcdefghi shaft encoder, where:

- a) XX Group Function
  - AX Absolute Explosion Proof (0-3000 rpm)
  - IX Incremental Explosion Proof (0-3000 rpm)
- b) Basic Series Number
  - 700 -
- c) Shaft Size in mm. (customer specific)
  - XX XX mm
- d) Mechanical Options
  - 0 None
- e) Connector Type (customer specific)
  - XX XX metre Cable
- f) Connector Location
  - A Axial
- g) Output Signals
  - E Binary <-> (For AX 700 only)
  - F Gray <-> (For AX 700 only)
  - 3 A+B+0 (For IX 700 only)
  - 6 A+B+0+Compliments (For IX 700 only)
- h) Output Circuit Type
  - 1 TTL (5 VDC) (For AX 700 only)
  - 3 Push Pull 4.75 to 30 VDC (For IX 700 only)
  - 5 Push Pull 8 to 30 VDC (For AX 700 only)
- i) Pulses Per Revolution
  - XXXXX - Client specific configuration

Note: Special functions and designs may be designated by a 4 digit code at the end of the part number. They are stated as information only and not covered within this certification.

The relation between ambient temperature and the assigned temperature class is as follows:

<b>AX700 (3000rpm): Ambient temperature range</b>	<b>Temperature class</b>
-20 °C to +65 °C	T6
-20 °C to +115 °C	T4
<b>Dust:</b>	T70
-20 °C to +55 °C	
<b>IX700 (3000rpm): Ambient temperature range</b>	<b>Temperature class</b>
-20 °C to +55 °C	T6
-20 °C to +105 °C	T4
<b>Dust:</b>	T70
-20 °C to +45 °C	

#### Electrical data

AX 700: 5-30VDC, maximum 100 mA.

IX 700: 4.75-30VDC, maximum 40mA.

#### Installation instructions

All cable entry devices elements shall be certified in type of explosion protection flameproof enclosure 'db' and dust 'tb', suitable for the conditions of use and correctly installed.

For ambient temperatures below -10 °C and above +60 °C use field wiring suitable for both minimum and maximum ambient temperature.

#### Routine tests

Routine tests according to EN 60079-1 cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

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## Schedule

[14]

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### Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [ 8 ] on page 1 of this EU-Type Examination Certificate.

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### Specific conditions of use:

- The encoder must be protected against exposure to direct sunlight and other ultraviolet light sources.
- The encoder is manufactured with a permanently mounted cable gland and permanently connected cable that is non-replaceable and shall be terminated in a safe area or in a suitable certified termination box.
- The encoder shall be kept clean from any dust deposit.
- For Group I, the encoder shall be protected against impacts greater than 7 joule.
- Only the manufacturer shall open the flame proof enclosure for inspections, repairs adjustment or investigation.


[18]

### Essential Health and Safety Requirements

Concerning ESRs this Schedule verifies compliance with the Annex III of ATEX directive only. By placing the product on the market, the manufacturer declares compliance with other relevant Directives, and all other safety related requirements including those of Annex II of this Directive.

### Additional information

The XX 700 shaft encoder has in addition passed the tests for Ingress Protection to IP 66/67 in accordance with EN60529:1991+A1:2000+A2:2013., after thermal endurance tests.

The trademark  will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.