IBExU Institut für Sicherheitstechnik GmbH

An-Institut der TU Bergakademie Freiberg

[1] **EU-TYPE EXAMINATION CERTIFICATE** - Translation

[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU



[3] EU-type examination certificate number IBExU16ATEX1159 X | Issue 1

[4] Product:

Encoder

Type: Ex FG 40

[5] Manufacturer:

JOHANNES HÜBNER Fabrik elektrischer Maschinen GmbH

[6] Address:

Siemensstraße 7 35394 Gießen GERMANY

- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the 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 the confidential test report IB-20-3-0134.

- [9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018, EN 60079-1:2014 and EN 60079-31:2014 except in respect of those requirements listed at item [18] of the schedule.
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of 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 this certificate.
- [12] The marking of the product shall include the following:

(x) II 2G Ex db IIC T6 or T5 Gb (x) II 2D Ex tb IIIC T85 °C Db

IBExU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7 09599 Freiberg, GERMANY

By order

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Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-10-12

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[13] Schedule

[14] Certificate number IBExU16ATEX1159 X | Issue 1

[15] Description of product

The Encoder of the type Ex FG 40 is a cylindrical unit with internal electronics for the angle and speed measurement and the transmission in electrical signals. The enclosure is designed in type of protection flameproof enclosure and protection by enclosure.

The type key Ex FG 40 **.****.*** describes different variants and configurations of the encoder Ex FG 40. In the area of the mechanics there are no differences with influence on the design of the flameproof gaps. The enclosure is produced from aluminium. The cable glands are not part of the examination. In addition, the type key describes the number of pulses, measured signals and interfaces of the encoder.

The permissible maximum ambient temperature of the various designs depends on the intended use of the encoder and is specified in the following table:

Category	Temperature Class	Max. ambient temperature
2G	T6	55 °C
2G	T5	60 °C
2D	T85°C	55 °C

The permissible lower ambient temperature limit of -40 °C applies to all encoder designs.

Technical parameters:

- Supply voltage electronics: 12 up to 30 V DC
- Rated power: ≤ 3.62 W

- Max. rotation speed: 6000 min-1

Ambient temperature range: -40 °C up to +55 °C or +60 °C

Degree of protection of enclosure acc. to EN 60529: IP 6X
 Property class screw plug: A2-70

Variations compared to issue 0 of this certificate:

Variation 1

The encoder complies with the requirements of EN IEC 60079-0:2018.

Variation 2

A metal name plate is used.

Variation 3

The encoder may be manufactured according to the changed documents.

[16] Test report

The test results are recorded in the confidential test report IB-20-3-0134 of 2020-10-09.

The test documents are part of the test report and they are listed there.

Summary of the test results

The Encoder of the type Ex FG 40 further fulfils the requirements of the explosion protection for equipment of group II, category 2G in the type of protection flameproof enclosure "db" as well as category 2D in type of protection dust explosion protection by enclosure "tb".

[17] Specific conditions of use

1. The surface temperature or temperature class of the equipment depends on the ambient temperature. The corresponding assignment for each design is specified in this EU-type examination or in the operating manual.

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- 2. The shaft and shaft sealing ring were not tested for resistance against environmental influences (UV radiation, mechanical influences) because, at a proper installation of the equipment for the intended use, no environmental influences are expected. If the equipment occasionally should not be installed as required, then the shaft and shaft sealing ring have to be protected against environmental influences (light sources, mechanical influences).
- 3. The type of protection depends on a proper selection and installation of the cable glands. All openings have to be provided with suitable cable glands. These cable glands must have been certified and passed the conformity assewith or EU-type examination certificates in accordance with the standards EN 60079-0 and EN 60079-1 (explosive gas atmospheres) and, if required, EN 60079-31 (explosive dust atmospheres). In addition, they have to be selected in accordance with EN 60079-14.
- 4. The product contains gaps which deviate from the minimum requirements of EN 60079-1. Therefore, repair work is not allowed.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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