

[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III
(Translation)



[2] Equipment and Protective Systems intended for use in
Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU14ATEX1047 X**

[4] Equipment: Incremental encoder
Type 8.7100..., 8.7114..., 8.7153..., 8.7158..., 8.7163..., 8.7168...

[5] Manufacturer: Fritz Kübler GmbH

[6] Address: Schubertstraße 47
78054 Villingen-Schwenningen
GERMANY

[7] The design of the equipment mentioned under [4] and any acceptable variations thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certify, that this Equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The test results are recorded in the test report IB-13-3-211 of 29 April 2014.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012 and EN 60079-1:2007.

[10] If the sign „X“ is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned under [4] shall include the following:

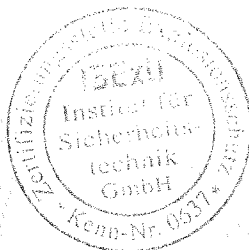
I M2 Ex d I/IIIC T4 Mb or
 I M2 Ex d I/IIIC T5 Mb or
 I M2 Ex d I/IIIC T6 Mb

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Authorised for certifications
-Explosion protection-

By order

(Dr. Wagner)



- Seal -
(ID no. 0637)

Freiberg, 29 April 2014

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.

[13]

Annex

[14]

to the EC-TYPE EXAMINATION CERTIFICATE IBExU12ATEX1090 X

[15]

Description of equipment

The encoders mentioned under [4] used for the conversion of a rotary motion into equivalent electric or digital pulses. They are designed to flameproof enclosure "d" and are provided for use in underground and the above ground mining. The plane cylindrical enclosure, the shaft and the screws are of stainless steel design. The shaft rotates in rolling bearings. Together with the flange and the cap, the shaft forms a flameproof shaft joint on one side. Electrical connection is realized by an integrated connecting cable (open ended line) which is brought-out by means of a separately certified cable gland.

The encoders are available in 3 basic variants, which differ in terms of speed, temperature class and the required IP protection.

Parameter

Geometry		diameter	length
		70 mm	115 mm
Mechanical Parameter			
• max. rotation speed (continuous operation)		6.000 min ⁻¹	
• weigth		ca. 1.3 kg	
• material	Drive shaft	stainless steel	
	enclosure	stainless steel	
• starting torque		< 0.05 Nm	
• screws flange cover	thread	M4 x 0.7	
	cohesiveness	A2-70	
Electrical Parameter			
• max. rated voltage		30 V DC	
• max. rated current		130 mA	
• max. power dissipation		4 W	
• max. rated conductor cross-section		12 x 0.50 mm ²	
Temperatures			
• ambient temperature (T _{amb})		-40 °C bis +60 °C	

[16]

Test report

The test results are recorded in the test report IB-13-3-211 of 28 April 2014. The test and information documents are part of the test report and listed there.

Summary of the test results:

The Incremental encoders type 8.7100..., 8.7114..., 8.7153..., 8.7158..., 8.7163..., 8.7168... [4] fulfils the requirements of explosion protection for equipment of Group I and Category M2, type of protection Flameproof enclosure for explosive atmospheres of explosion group I and the gas group IIC.

[17]

Special conditions for safe use

- The gap widths and lengths remained below / exceeded those specified in EN 60079 1:2007, table 2. They are documented in the instruction manual.
Repairs on the flameproof joints may only be made in accordance with the manufacturer's structural specifications. Repair on the basis of the values in tables 1 and 2 of EN 60079-1 is not permitted.
- The equipotential bonding respectively the grounding shall be ensured by the cultivation of the encoder to the overall system.

[18] **Essential Health and Safety Requirements**

Confirmed by compliance with standards (see [9]).

By order

Freiberg, 29 April 2014



(Dr. Wagner)

