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

Certificate No.:	**IECEx KDB 16.0011X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2018-02-19) Issue 0 (2016-08-26)
Date of Issue:	2021-08-30		
Applicant:	**FRABA B.V.** Jan Campertstraat 11, 6416 SG Heerlen **Netherlands**		
Equipment:	**Encoder type OCF and UCF**		
Optional accessory:			
Type of Protection:	**Equipment protection by type protection “n” and dust ignition protection by enclosure "t"**		
Marking:	**Ex nA IIC T* Gc** **Ex tc III C T**°C Dc**		

Approved for issue on behalf of the IECEx Certification Body: **mgr inż. Piotr Madej**

Position: **Head of ExCB**

Signature: (for printed version)

Date:

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 or use of this QR Code.

Certificate issued by:

Główny Instytut Górnictwa, Kopalnia Doświadczalna "BARBARA"
(Central Mining Institute Experimental Mine "Barbara")
ul. Podleska 72
43-190 Mikołów
Poland

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Manufacturer: **FRABA B.V.**
Jan Campertstraat 11, 6416 SG Heerlen
Netherlands

Additional manufacturing locations: **Fraba B.V., Oddział Produkcyjno-Logistyczny CONISTICS Sp. z o.o.**
Os. Przemysłowe 24
69-100 Słubice
(Site audited)
Poland

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 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

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 Report:

PL/KDB/ExTR16.0003/02

Quality Assessment Report:

PL/OBAC/QAR20.0002/01

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Encoders type OCF and UCF are used to precisely determine the physical position and/or revolutions over time, for movement of elements attached to it. The acquired information is then transferred to the master device.

By its physical position, it is possible to determine both the position of the element in a given environment and its state in relation to the axis (rotation or inclination). Speed is determined by determining the change of position with respect to time.

The encoders type OCF and UCF type are based on absolute optical and magnetic encoders, depending on the version, available also in single and multi-turn versions. There are versions with various communication interfaces, such as: Fieldbus, Analog or Ethernet.

Description of available versions of Encoder type OCF and UCF is included in attachment.

Technical parameters:

Nominal voltage: 30 VDC

Maximum nominal current: 450 mA

Ambient temperature range: -40˚C ÷ 40˚C or -40˚C ÷ 55˚C or -40˚C ÷ 70˚C (depends on version)

Degree of protection: IP 64 or IP66 or IP67 (depends on version)

Description of marking of temperature classes / maximum surface temperature is included in attachment.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- Temperature class of the device (T* for gas) or the maximum surface temperature (T** for dust) depends on the ambient temperature and maximum speed of the encoder. It should be determined in accordance with the manufacturer’s manual.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
New versions of the device have been implemented.

Annex:

CoC_KDB_16_0011X_02_Attachment_1.pdf

Encoder type OCF is available in the following versions:

OCF	-	xxxxx	-	xxxx	-	x	xx	x	-	x	x	x	-	xxx
1		2		3		4	5	6		7	8	9		10

Where:

1	Technology	OCF – optical encoder	
2	Hardware/Software Interface:	CAxxB	CANopen
		D2xxB	DeviceNET
		ECxxB	EtherCAT
		E2xxB	Powerlink
		EMxxB	Modbus TCP IP
		DPxxB	Profibus
		EExxB	Ethernet
		EIxxB	IP/Profinet IP
		PPxxG (B)	Parallel Preset
		P1xxG(B)	SSI Gray or Binary
		S1xxG(B)	SSI + incremental (RS-422)Binary or Gray
3	Revolutions/Resolution	00xx	single-turn encoder
		XXXX	multi-turn encoder
4	Flange Type	C - 58 mm clamp flange	
		B - 58 mm blind hollow shaft	
		S - 58 mm synchro flange	
		T - 58mm through hollow shaft	
		9 - square flange for optical encoder	
5	Shaft diameter	XX – mm or inches	
6	Protection Class/ Material	0 - IP64 / aluminum	
		S - IP66 / aluminum with sealing shaft	
		V - IP67 / Stainless Steel V2A	
		W - IP67 / Stainless Steel V4A	
7	Connection Type	C – 1 m cable exit	
		2 – 2 m cable exit	
		5 - 5 m cable exit	
		A – 10 m cable exit	
		x – other lengths	
		H – connection cap	
		P – M12 connector exit(s)	
8	Connection Type Options	A – axial exit	
		R – radial exit	
		3 – 3 cable glands	
		2 – 2 cable glands or connectors, 1 blind plug	
		1 - 1 cable gland or connector, 2 blind plugs	
9	Connection Details	E – Atex graded cable exit	
		Q – M12 8 pin connector(s)	
		M – M12 5 pin connector(s)	
10	Special Option	XXX – customized software settings or configuration	

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Encoder type UCF is available in the following versions:

Absolute Encoder

UCF	-	xxxxx	-	xxxx	-	x	xx	x	-	x	x	x	-	xxx
1		2		3		4	5	6		7	8	9		10

Incremental Encoder

UCF	-	xxxxx	-	xxxxx	-	x	xx	x	-	x	x	x	-	xxx
1		2		3		4	5	6		7	8	9		10

Where:

1	Technology	UCF – magnetic encoder	
2	Hardware/Software Interface:	IPxxx	incremental encoder programmable
		AVxx1	Analog Voltage 0 - 5V
		AVxx2	Analog Voltage 0 - 10V
		AVxx3	Analog Voltage 0.5 - 4.5V
		AVxx4	Analog Voltage 0.5 - 9.5V
		ACxx5	Analog Current 4 - 20 mA
		ACxx6	Analog Current 0 - 20 mA
		CAxxB	Canopen
		CLxxB	Canopen Lift
		C9xxB	J1939
		S1xxG(B)	SSI Gray or Binary
		Sxxxx	SSI programmable version
		LKxxB	I/O link
		BCxxB	BiSS-C
		M1xxB	Modbus
		ECxxB	EtherCAT magnetic
		EExxB	Ethernet IP magnetic
		EIxxB	Profinet magnetic
3	Revolution/Resolution (absolute) Pulses per revolution (incremental)	00xx	single-turn encoder
		xxxx	multi-turn encoder
		xxxxx	programmable ppr (00001-16384)
4	Flange Type	M - 58 mm clamp flange for 36 mm housing	
		R - 36 mm synchro flange	
		V - 36-42 mm blind hollow shaft	
		L - 58 mm clamp flange for 58 mm housing	
		H - 58 mm blind hollow shaft	
		Y - 58 mm synchro flange	
		3 - square flange for 36 mm housing	
		4 - square flange	
		D - synchro flange with higher IP protection level stainless steel	
		G - synchro flange with higher IP protection level aluminum	

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5	Shaft diameter	xx – mm or inches
6	Protection Class/ Material	0 - IP64 / aluminum
		S - IP66 / aluminum with sealing shaft
		V - IP67 / stal nierdzewna V2A
		W - IP67 / stal nierdzewna V4A
		D – IP67 / aluminum with sealing
		G – IP67/ aluminum with sealing
7	Connection Type	C – 1 m cable exit
		2 – 2 m cable exit
		5 - 5 m cable exit
		A – 10 m cable exit
		x – other lengths
		H – connection cap
		P – M12, MS14, MS16, MS18 connector exit(s)
8	Connection Type Options	A – axial exit
		R – radial exit
		3 – 3 cable glands
		2 – 2 cable glands or connectors, 1 blind plug
		1 - 1 cable gland or connector, 2 blind plugs
9	Connection Details	E – Atex graded cable exit
		Q – M12 8 pin connector(s)
		M – M12 5 pin connector(s)
		D – MS14 6 pin
		E – MS16 7 pin
		F – MS18 10pin
10	Special Option	XXX – customized software settings or configuration

Marking of temperature classes / maximum surface temperatures.

Maximum ambient temperature / **Maximum revolutions**	Ta = 40°C	Ta = 55°C	Ta = 70°C
3000rpm	**T6**	**T5**	**T4**
	85°C	**100°C**	**115°C**
2500rpm	**T6**	**T5**	**T4**
	85°C	**100°C**	**115°C**
2000rpm	**T6**	**T6**	**T5**
	85°C	**85°C**	**100°C**
1500rpm	**T6**	**T6**	**T5**
	85°C	**85°C**	**100°C**

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