

ATEX PROGRAMMABLE INCREMENTAL ENCODERS, IHK5 RANGE

Intrinsically safe encoders, specially designed for explosive GAZ or DUST atmospheres

For chemical applications (painting, solvent, fragrances, rubber), textile, food processing, wood, petrochemistry...

EC type examination certificate

Download from our website www.beisensors.com

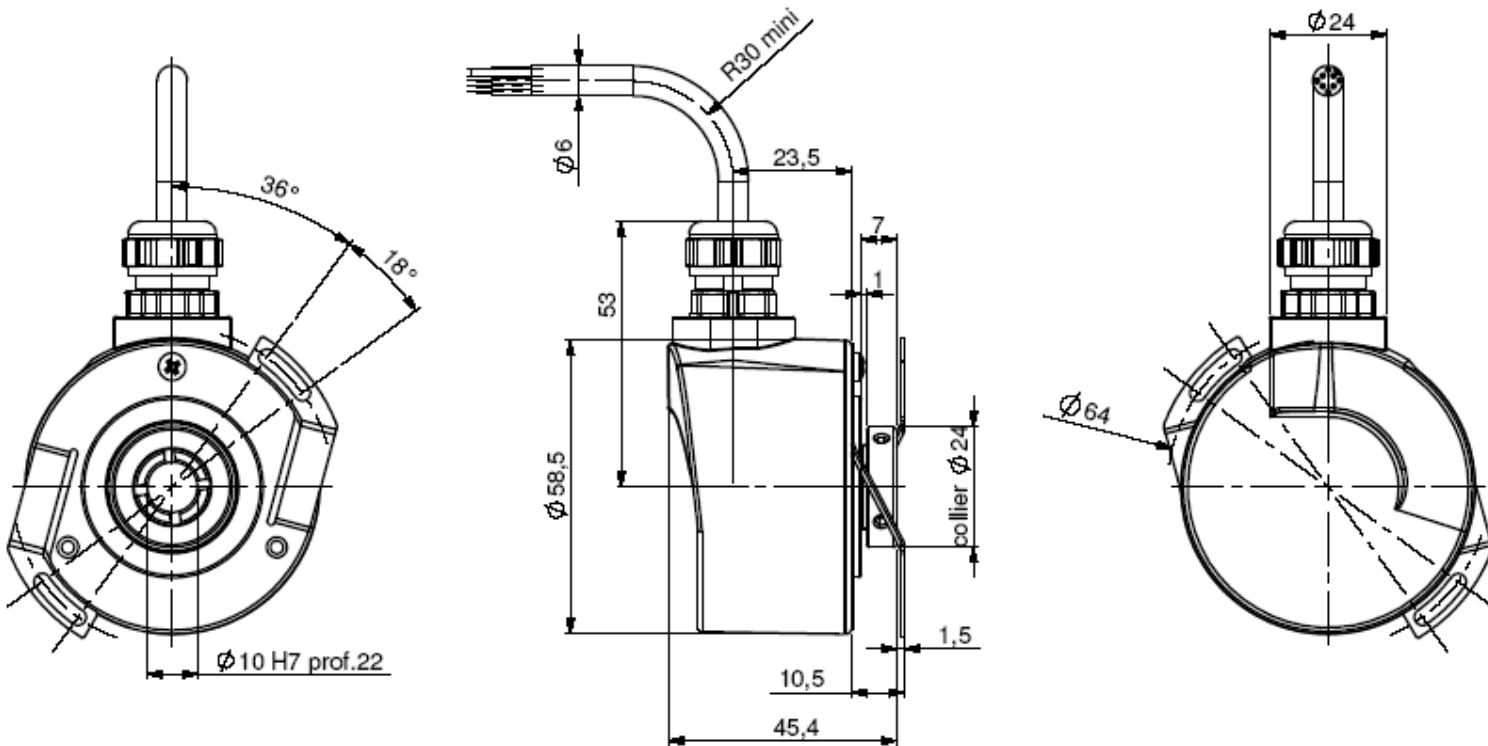
ICIE04 ATEX 6109 X

CE0081

II 1 G/D EEx ia IIC/B/T4 Ex ia D 20 T135°C



IHK5_10 connection G3R (radial cable), DAC 9445/016 mounted onto the body



Minimal Depth for an optimal centring: 12mm

CHARACTERISTICS

Material	Cover : zinc alloy	Shock (EN60068-2-27)	$\leq 500 \text{ m.s}^{-2}$ (during 6 ms)
	Body : aluminium	Vibration (EN60068-2-6)	$\leq 100 \text{ m.s}^{-2}$ (55 ... 2 000 Hz)
	Shaft : stainless steel	CEM	EN 50081-1, EN 61000-6-2
Bearings	6 803 serie	Isolation	1 000 V
Maximal load	Axial : 20 N	Weight (connector)	0,3 kg
	Radial : 50 N	Operating temperature	-30 ... +70°C (encoder T ⁹)
Shaft inertia	$\leq 2,2 \cdot 10^{-6} \text{ kg.m}^2$	Storage temperature	-30 ... +80°C
Torque	$\leq 6 \cdot 10^{-3} \text{ N.m}$	Protection (EN 60529)	IP 65
Permissible max.speed	6 000 min ⁻¹	Torque (ring pressure screw)	nominal: 1.5 N.m, break: 2.0 N.m
Continuous max. speed	6 000 min ⁻¹	Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial})	
Shaft seal	Viton	10 N / 25 N : 230	20 N / 50 N : 29

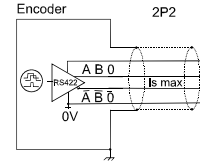
ATEX PROGRAMMABLE INCREMENTAL ENCODERS, IHK5 RANGE

OUTPUT ELECTRONIC / SUPPLY - DIGITAL SIGNALS (SQUARE WAVE SIGNALS) - 2P2 ELECTRONIC

Supply : 4.5 to 6Vdc, Consumption : 75mA
Intern capacity : 1.3µF, intern inductance : 0mH
RS422, 40 mA, TTL 20mA, F_{max} = 300kHz
II G/D EEx ia IIC T4, Ex iaD 20 T135°C

Barrier to be used for supply:
U_i ≤ 10V, I_i ≤ 750mA, P_i ≤ 1.875W

Barrier to be used for each output:
U_i ≤ 10V, I_i ≤ 200mA, P_i ≤ 0.5W



Protection against short circuits

STANDARD CONNECTION

		-	+	A	B	0	A/	B/	0/	Ground
G6	12 pins CW	1	2	3	4	5	6	7	8	Body Connector
G8	12 pins CCW	10 + 11	2 + 12	8	5	3	1	6	4	Body Connector
G3	PVC cable 8 wires 8230/020	WH white	BN brown	GN green	YE yellow	GY grey	PK pink	BU blue	RD red	General Shielding
GP	PUR cable 12 wires 8230/050	WH white + WH/GN white / green	BU blue + BN/GN brown / green	GY grey	BN brown	RD red	PK pink	GN green	BK black	General Shielding

ORDERING REFERENCE

	Shaft Ø	Supply	Output stage	Signals	Resolution	Connection	Orientation
IHK5 Cover : Zinc alloy Body : Aluminium	14 : 14 mm	2 : 5Vdc	P2 : driver RS422	9 : A,A/,B,B/,0,0/ (0, gated A&B)	Basic: 5 000 max	G6 : M23 12pins CW G5 : M23 12pins CW G8 : M23 12 pins CCW G1 : solenoid 4 pins G2 : DIN 5 pins GD : DIN 8 pins G3 : PVC cable 8 wires GP : PUR cable 12 wires	R : radial Example : R020 : radial cable 2m
Ex: IHK5	14 //	2	P2	9 //	5 000 //	GP	R050

AVAILABLE INTERPOLATED RESOLUTIONS

Simple multiplication of the basic disk resolution : 1, 2, 3, 4, 5, 8, 10, 12 and 16 times by dip-switch without software, nor hardware

Interpolation Factor	Basis Resolutions											switchs position				
	250	256	360	500	1 024	2 500	3 000	3 600	4 000	4 096	5 000	factor	CODE SWITCH			
X1	250	256	360	500	1 024	2 500	3 000	3 600	4 000	4 096	5 000	x 1	ON	ON	ON	ON
X2	500	512	720	1 000	2 048	5 000	6 000	7 200	8 000	8 192	10 000	x 2	ON	ON	ON	ON
X3	750	768	1 080	1 500	3 072	7 500	9 000	10 800	12 000	12 288	15 000	x 3	ON	ON	ON	ON
X4	1 000	1 024	1 440	2 000	4 096	10 000	12 000	14 400	16 000	16 384	20 000	x 4	ON	ON	ON	ON
X5	1 250	1 280	1 800	2 500	5 120	12 500	15 000	18 000	20 000	20 480	25 000	x 5	ON	ON	ON	ON
X8	2 000	2 048	2 880	4 000	8 192	20 000	24 000	28 800	32 000	32 768	40 000	x 8	ON	ON	ON	ON
X10	2 500	2 560	3 600	5 000	10 240	25 000	30 000	36 000	40 000	40 960	50 000	x 10	ON	ON	ON	ON
X12	3 000	3 072	4 320	6 000	12 288	30 000	36 000	43 200	48 000	49 152	60 000	x 12	ON	ON	ON	ON
X16	4 000	4 096	5 760	8 000	16 384	40 000	48 000	57 600	64 000	65 536	80 000	x 16	ON	ON	ON	ON

NEVER CONNECT / DISCONNECT OR OPEN THE ENCODER UNDER POWER SUPPLY IN DUST ENVIRONMENTS

RESPECT THE MOUNTING TOLERANCES AND THE MECHANICAL RESTRICTIONS IN ORDER TO REMAIN IN LINE WITH THE MAXIMAL SURFACE TEMPERATURE VALUE ALLOWED BY THE CLASS T4 REQUIREMENTS

ICIE04 ATEX 6109 X : CE certification of Type for the encoder:

Operating temperature : **-30°C to +70°C**

The components of the device are intrinsically safe : they can be used in explosive atmospheres. The supply and output circuits can only be connected to associated devices which are intrinsically safe and that are certified by type (ia) or (ib). These devices must have electrical parameters that have a compatible supply with the above mentioned electronics

ICIE04 ATEX 6155 X : CE certification of Type for the encoder's system (encoder in association with a BEI barrier) :

Operating temperature : **barrier -20°C to +40°C and encoder -30°C to +70°C**

System classification : **EEx ia IIC T4 Ex iaD 20 T135°C**

The interconnecting cables have to be sufficiently protected against damage and have to be separated from the non intrinsically safe circuits. They are described in the norm EN50020 paragraph 6.3, with the following characteristics C=100pF/m and L=1.2µH/m, or with cables with other C and L values, with respect to the maximum authorized :

Gases : **Ca=3.9µF and L=0.4mH**

Dust : **Ca=38.7µF and L=0.8mH**

Made in FRANCE


ATEX PROGRAMMABLE INCREMENTAL ENCODERS, IHK5 RANGE

1) Déclaration de conformité CE

2) Nous, société BEI Sensors, certifions que ce matériel :
capteurs antidéflagrants, type

IHM5, IHM9, IHO5 et IHK5

3) Avec les inscriptions suivantes :

CE 0081  **II 1 G/D, EEx ia IIB ou IIC T4, Ex iaD 20 T135°C**

A été conçu et fabriqué conformément à la directive applicable suivante :

ATEX directive 94/9/CE

Directive CEM 89/336/CEE

4) La certification a été obtenue grâce à l'application des normes suivantes :

EN 50014 (1997) + amendements 1 et 2, EN 50020 (2000), EN 13980 (2002), CEI 61241-0-Ed.1 (2004), CEI 61241-11-Ed.1 (2004)

5) Une attestation d'examen CE de type a été obtenu :

ICIE04 ATEX 6109 X

et une notification :

ICIE03 ATEX Q8060

6) L'application des normes suivantes a participé à l'obtention de la certification :

EN 50081-1, EN 55022 classe B, EN 55014, EN 61000-6-2, CEI 61000-4-2, CEI 61000-4-3, CEI 61000-4-4, CEI 61000-4-5, CEI 61000-4-6, CEI 61000-4-8, CEI 61000-4-11

7) L'organisme notifié responsable du suivi de la directive **ATEX** est le

LCIE, B.P.8, F92260 Fontenay-aux-Roses

Numéro d'identification : 0081

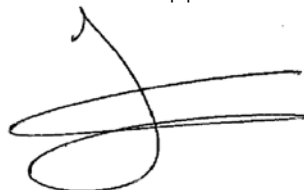
8) La société chargée de la certification **CEM** est nommée ci-après :

GRME, Cellule CEM, B.P.8, 68840 Pulversheim

9) Nous certifions que nos produits désignés ci-dessus sont conformes à la directive et aux normes spécifiées

Date :

ATEX Certified Product Approved Person




1) Declaration of conformity EC

2) We, BEI Sensors, certify that this material :
intrinsicly safe standard

IHM5, IHM9, IHO5 and IHK5

3) With the following inscriptions :

CE 0081  **II 1 G/D, EEx ia IIB or IIC T4, Ex iaD 20 T135°C**

Conceived and manufactured has the directive applicable following :

ATEX directive 94/9/CE

Directive CEM 89/336/CEE

4) Certification to summer obtained thanks to the application of the standards :

EN 50014 (1997) + amendments 1 and 2, EN 50020 (2000), EN 13980 (2002), CEI 61241-0-Ed.1 (2004), CEI 61241-11-Ed.1 (2004)

5) EC type examination certificate was obtained :

ICIE04 ATEX 6109 X

and a notification :

ICIE03 ATEX Q8060

6) The application of the following standards took part in obtaining certification :

EN 50081-1, EN 55022 classe B, EN 55014, EN 61000-6-2, CEI 61000-4-2, CEI 61000-4-3, CEI 61000-4-4, CEI 61000-4-5, CEI 61000-4-6, CEI 61000-4-8, CEI 61000-4-11

7) The notified organization responsible for the follow-up of the directive **ATEX** is the

LCIE, B.P.8, F92260 Fontenay-aux-Roses

Identification number : 0081

8) The company in charge of certification **CEM** is named :

GRME, Cellule CEM, B.P.8, 68840 Pulversheim

9) We certify that our indicated products so above are in conformity with the directive and the specified standards