

## ATEX 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](http://www.beisensors.com)

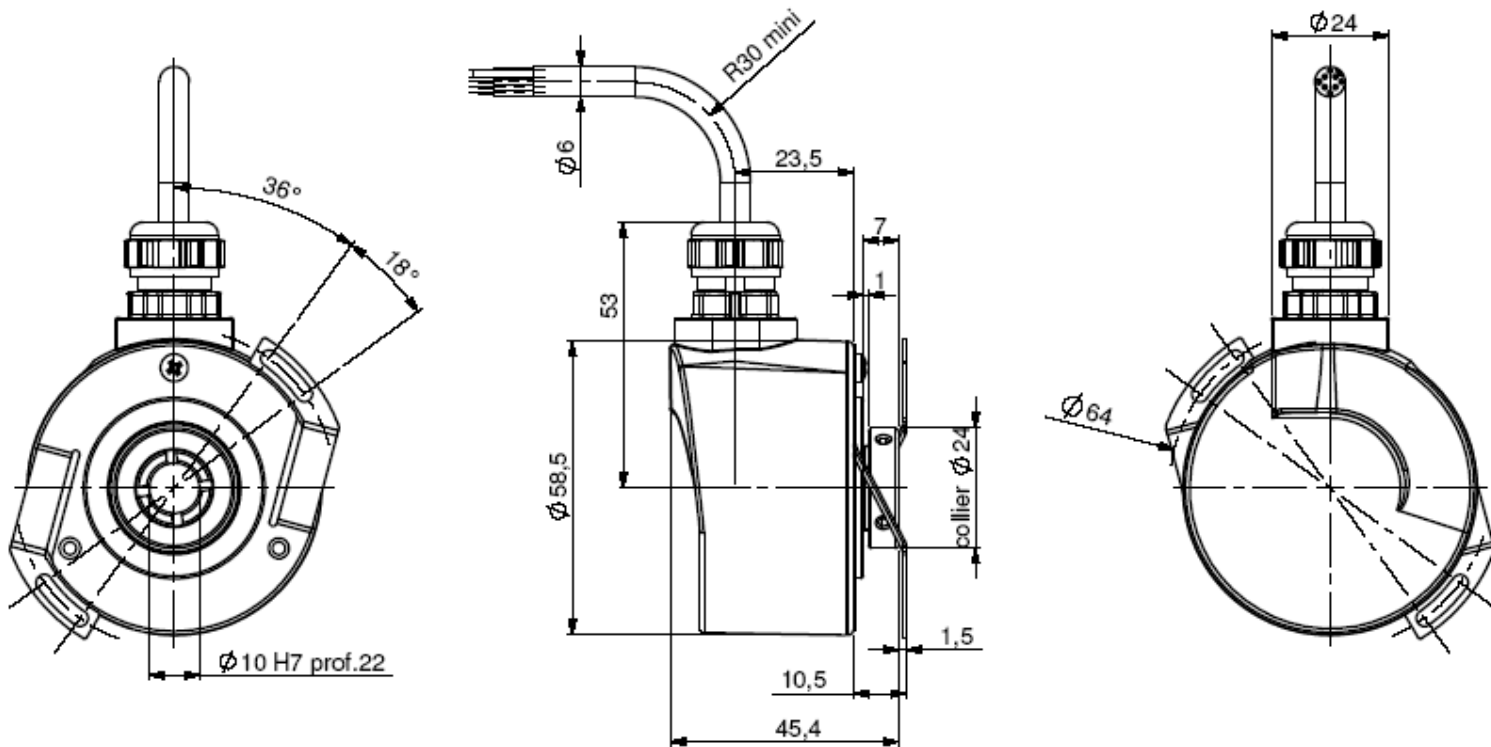
ICIE04 ATEX 6109 X

CE0081

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



### IHK5\_10 connection G3R(radial cable), DAC 9445/016 mounted onto the body



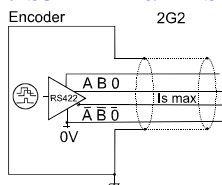
Minimal Depth for an optimal centring: 12mm

### 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 <sup>T</sup> )
Shaft inertia	$\leq 2,2 \cdot 10^{-6} \text{ kg.m}^2$	Storage temperature	- 30 ... + 100°C
Torque	$\leq 6 \cdot 10^{-3} \text{ N.m}$	Protection (EN 60529)	IP 65
Permissible max. speed	6 000 $\text{min}^{-1}$	Torque (ring pressure screw)	nominal: 1.5 N.m, break: 2.0 N.m
Continuous max. speed	6 000 $\text{min}^{-1}$	Theoretical mechanical life time $10^9$ turns ( $F_{axial} / F_{radial}$ )	
Shaft seal	Viton	10N / 25N : 230	20N / 50N : 29

## ATEX INCREMENTAL ENCODERS, IHK5 RANGE

### OUTPUT ELECTRONIC / SUPPLY - DIGITAL SIGNALS (SQUARE WAVE SIGNALS)



**Electronic 2G2**

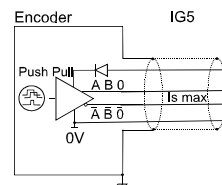
Supply : 4.5 to 6Vdc Consumption : 75mA  
Intem capacity: 1.3µF, intem inductance: 0mH

II 1 G/D EEx ia IIC T4, Ex ia D 20 Tl35°C  
RS422, 40 mA, TIL20mA, F<sub>max</sub>=300kHz

Barrier to be used for supply:  
U<sub>i</sub><10V, I<sub>i</sub><750mA, P<sub>i</sub><1.875W

Barrier to be used for each output:  
U<sub>i</sub><10V, I<sub>i</sub><200mA, P<sub>i</sub><0.5W

Protection against short circuits (for both electronic) and polarity inversions (except for 2G2)



**Electronic IG5**

Supply : 8 to 12Vdc Consumption : 75mA  
Intem capacity: 1.3µF, intem inductance: 0mH

II 1 G/D EEx ia IIC T4, Ex ia D 20 Tl35°C  
Push Pull 50mA, F<sub>max</sub>=300kHz

Barrier to be used for supply:  
U<sub>i</sub><16V, I<sub>i</sub><750mA, P<sub>i</sub><3W

Barrier to be used for each output:  
U<sub>i</sub><16V, I<sub>i</sub><150mA, P<sub>i</sub><0.6W

### STANDARD CONNEXION

		-	+	A	B	0	A/	B/	0/	Ground
G6	12 pins CW	1	2	3	4	5	6	7	8	Connector body
G8	12 pins CCW	10 + 11	2 + 12	8	5	3	1	6	4	Connector body
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

IHK5	Shaft Ø	Digital signals (square)				Connection	Orientation
		Electronic : 2G2, IG5		Signals	Resolution		
		Supply	Output stage				
Cover: Zinc alloy	14 : 14mm	2: 5Vdc	G2: driver RS422	9: A, A/, B, B/, 0, 0/ (0 gated A&B)	80 000 max	G6 : M23 12pins CW G5 : M23 12pins CCW G1 : solenoid valve 4pins G2 : DIN 5 pins GD : DIN 8 pins	R: radial
Body: Aluminium		I 8-12Vdc	G5: driver push-pull				
Ex: IHK5 _	14 //	2	G2	9 //	10 000 //	GP	R050

Available resolutions (2G2 and IG5): 50 60 100 120 125 127 150 180 200 240 250 256 300 314 360 375 400 500 512 600 720 750 762 768 800 927 1000 1024 1200 1250 1280 1440 1500 1800 2000 2048 2400 2500 3000 3600 4000 4096 5000

Interpolated available resolutions (2G2 only): 1080 2560 2880 3072 4320 5120 5760 6000 7200 7500 8000 8192 9000 10000 10240 10800 12000 12500 12288 14400 15000 16000 16384 18000 20000 20480 24000 25000 28800 30000 32000 32768 36000 40000 40960 43200 48000 49152 50000 57600 60000 64000 65536 80000

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

**RESPECT THE MOUNTING 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 ia D 20 Tl35°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 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 obtenue :

**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

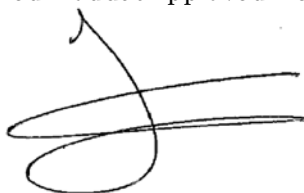
8) La société chargée de la certification CEM est nommée ci-après :

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: sensor intrinsically 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