

## ATEX INCREMENTAL ENCODERS, IHO5 RANGE

**Intrinsically safe encoders, specially designed for explosive GAS atmospheres**

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



**EC type examination certificate**

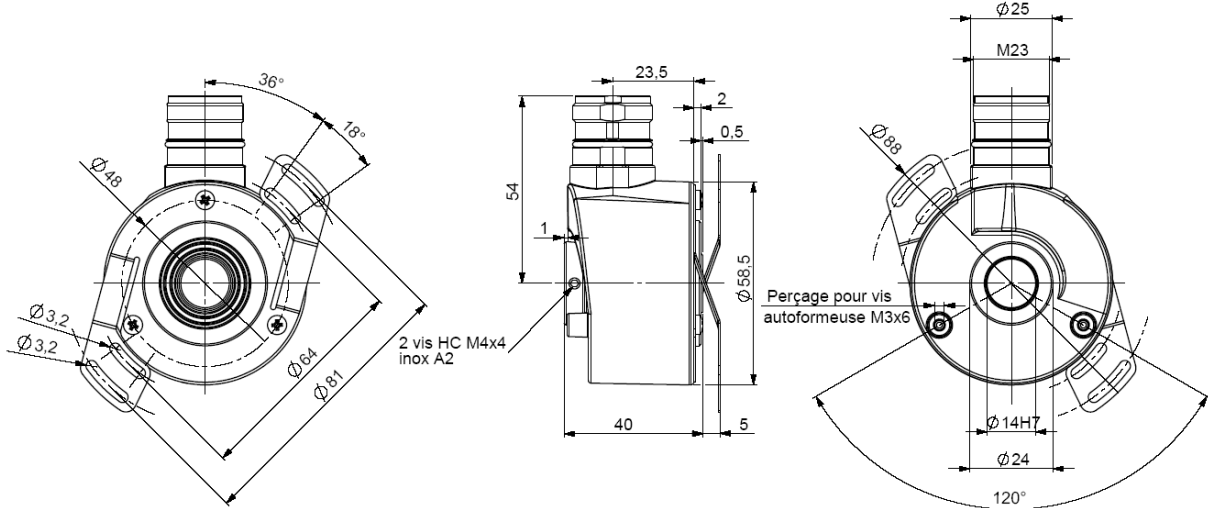
**LCIE ATEX & IECEx approved**



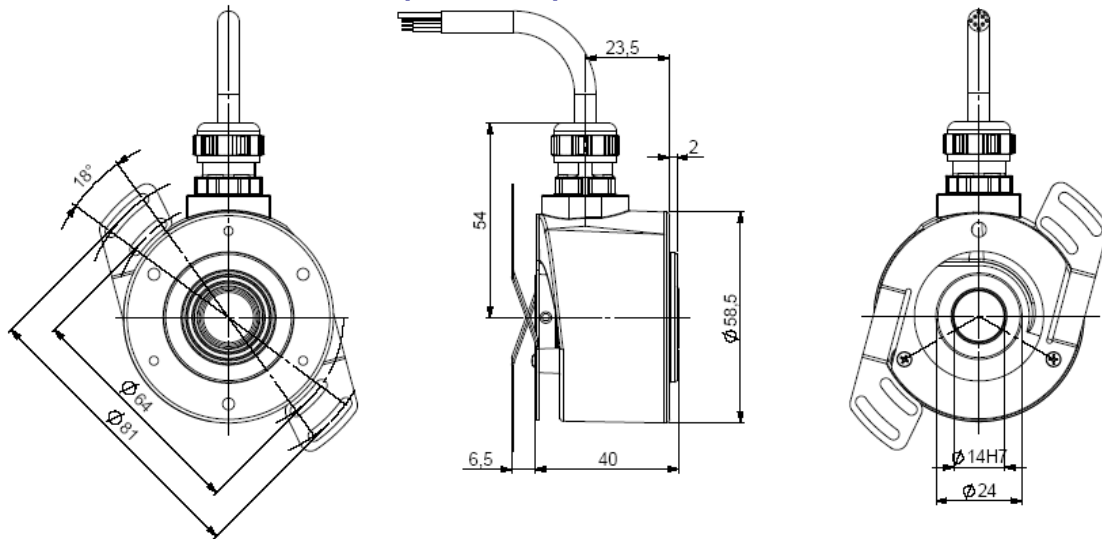
Ex ia IIC T4 Ga (electronic 2G2) or Ex ia IIB T4 Ga (electronic IG5)



### IHO5\_14 connection G6R (radial M23), DAC 9445/015 mounted on the body



### IHO5\_14 connection G3R (radial cable), DAC 9445/015 mounted onto the cover

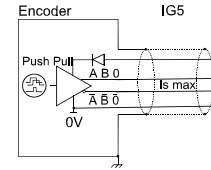
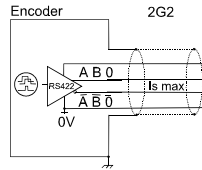


## MECHANICAL CHARACTERISTICS

Material	Cover : zinc alloy	Shock (EN60068-2-27)	≤ 500 m.s <sup>-2</sup> (during 6 ms)
	Body : aluminium		Vibration (EN60068-2-6)
Stainless steel body option	Shaft : stainless steel	CEM	EN 50081-1, EN 61000-6-2
Bearings	6 803 serie	Insulation	1 000 V
Maximum load	Axial : 20 N	Encoder weight approx.	0,300 kg
	Radial : 50 N	Operating temperature	- 30 ... + 70°C (encoder T°)
Shaft inertia	≤ 2,2.10 <sup>-6</sup> kg.m <sup>2</sup>	Storage temperature	- 40 ... + 100°C
Torque	≤ 6.10 <sup>-3</sup> N.m	Protection(EN 60529)	IP 65
Permissible max.speed	6 000 min <sup>-1</sup>	Torque (ring pressure screw)	nominal: 1.5 N.m, break: 2.0 N.m
Continuous max. speed	6 000 min <sup>-1</sup>	Theoretical mechanical lifetime 10 <sup>9</sup> turns (F <sub>axial</sub> / F <sub>radial</sub> )	
Shaft seal	Viton	10N / 25N : 230	20N / 50N : 29

## ATEX INCREMENTAL ENCODERS, IHO5 RANGE

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



Types	Electronic 2G2	Electronic IG5
	II 1 G Ex ia IIC T4 Ga	II 1 G Ex ia IIB T4 Ga
Power supply	4.5 to 6Vdc, cons. : 75mA	8 to 12Vdc, cons. : 75mA
	Ui≤10V, Ii≤750mA, Pi≤1W Ci=1,3μF, Li=0	Ui≤16V, Ii≤750mA, Pi≤1W Ci=1,3μF, Li=0
Output signal	RS422, 40 mA, TTL 20mA, Fmax=300kHz	Push Pull 50mA, Fmax=300kHz
	Ui≤10V, Ii≤200mA, Pi≤0,1W Ci=1,3μF, Li=0	Ui≤16V, Ii≤150mA, Pi≤0,1W Ci=1,3μF, Li=0
Cable linear capacitance	100pF/m	
Cable linear inductance	1,2μH/m	

### STANDARD CONNECTION

		-	+	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

	Shaft Ø	Digital signals (square)				Connection	Orientation
		Electronic : 2G2, IG5		Signals	Resolution		
		Supply	Output stage				
<b>IHO5</b> Aluminum body	<b>14</b> : 14mm  Reduction hubs available	<b>2</b> : 5Vdc	<b>G2</b> : driver 5Vdc RS422	<b>9</b> : A,A/,B,B/,0,0/ (0 gated A&B)	<b>80 000</b> max	<b>G6</b> : M23 12pins CW <b>G8</b> : M23 12 pins CCW Other consult us	<b>R</b> : radial
<b>IBO5</b> Stainless steel body			<b>G5</b> : push-pull				
Ex: IHO5 _	<b>14</b> //	<b>2</b>	<b>G2</b>	<b>9</b> //	<b>10 000</b> //	<b>GP</b>	<b>R050</b>

**Available resolutions (2G2 and IG5):** 50 60 100 120 125 127 150 180 200 240 250 256 300 314 360 375 400 500 512 600 720 750 768 800 927 1000 1024 1200 1250 1280 1440 1500 1800 2000 2048 2400 2500 3000 3600 4000 4096 5000 6000 7200 8000 8192 10000

**Interpolated available resolutions (2G2 only):** 1080 2560 2880 3072 4320 5120 7500 5760 9000 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 WITH POWER ON OR IN HAZARDOUS ENVIRONMENTS  
RESPECT THE MOUNTING TOLERANCES AND THE MECHANICAL RESTRICTIONS IN ORDER TO REMAIN IN LINE WITH THE  
MAXIMUM SURFACE TEMPERATURE VALUE ALLOWED BY THE CLASS T4 REQUIREMENTS**

### LCIE 04 ATEX 6109 X: CE certification of Type for the encoder :

The apparatus can be only connected to certified intrinsically safe apparatus. These combinations must be compatible as regard the intrinsic safety rules (see electrical parameters clause 15).

For the apparatuses equipped with a cable, the connecting must be done according to the requirements of the EN 60079-0 standard.

The apparatuses type "IH.." must not be submitted to mechanical impacts or frictions

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

Made in FRANCE

## ATEX INCREMENTAL ENCODERS, IHO5 RANGE

### 1) Déclaration UE de conformité

2) Nous, société BEI Sensors, certifions que ce matériel :  
capteurs à sécurité intrinsèque, type

**IHM5, IHM9, IHO5 et IHK5**  
**IBM5, IBM9, IBO5 et IBK5**

3) Avec les inscriptions suivantes :



II 1 G

**Ex ia IIC T4 Ga (électronique 2G2) ou**  
**Ex ia IIB T4 Ga (électronique IG5)**

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

**ATEX : 2014/34/UE**

**CEM : 2014/30/UE**

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

(\*) ATEX: EN60079-0:2012+A11:2013, EN60079-11:2012

IECEx: IEC60079-0 :2012+IS1 2013, IEC60079-11 :2011

(\*) Une étude comparative de la norme EN 60079-0 (2009 et 2012+A11 2013) montre que le matériel n'est pas concerné par les modifications substantielles.

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

**LCIE 04 ATEX 6109 X**

et une notification :

**LCIE 03 ATEX Q 8060**

6) Un certificat de conformité IECEx a été obtenu :

**IECEx LCIE 13.0048X**

et une notification :

**FR/LCI/QAR08.0002**

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

EN 60-529, NFC 23-520, NFC 23-539, EN 50081-1, EN 55022 classe B, EN 55014, EN 61000-6-2, CEI 61000-4-2, CEI 61000-4-3, CEI61000-4-4, CEI 61000-4-5, CEI 61000-4-6, CEI 61000-4-8, CEI 61000-4-11

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

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

Numéro d'identification : 0081

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

LCIE BUREAU VERITAS, Aire de la Thur,  
68840 Pulversheim

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

### 1) EU Declaration of conformity

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

**IHM5, IHM9, IHO5 and IHK5**  
**IBM5, IBM9, IBO5 and IBK5**

3) With the following inscriptions:



II 1 G

**Ex ia IIC T4 Ga (electronic 2G2) or**  
**Ex ia IIB T4 Ga (electronic IG5)**

Conceived and manufactured has the directive applicable following:

**ATEX : 2014/34/EU**

**CEM : 2014/30/EU**

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

(\*) ATEX: EN60079-0:2012+A11:2013, EN60079-11:2012

IECEx: IEC60079-0 :2012+IS1 2013, IEC60079-11 :2011

(\*) A comparative study of the standard EN 60079-0 (2009 and 2012+A11 2013) shows that the product is not concerned by the substantial modifications.

5) EC type examination certificate was obtained :

**LCIE 04 ATEX 6109 X**

and a notification :

**LCIE 03 ATEX Q 8060**

6) IECEx certificate of conformity was obtained :

**IECEx LCIE 13.0048X**

and a notification :

**FR/LCI/QAR08.0002**

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

EN 60-529, NFC 23-520, NFC 23-539, EN 50081-1, EN 55022 classe B, EN 55014, EN 61000-6-2, CEI 61000-4-2, CEI 61000-4-3, CEI61000-4-4, CEI 61000-4-5, CEI 61000-4-6, CEI 61000-4-8, CEI 61000-4-11

8) 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

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

LCIE BUREAU VERITAS, Aire de la Thur,  
68840 Pulversheim

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

Date :

Personne Autorisée Produits certifiés ATEX

Jean-Marc HUBSCH

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