

ATEX PROGRAMMABLE INCREMENTAL ENCODERS, IHM9 RANGE

Intrinsically safe encoders, specially designed for explosive GAS atmospheres

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



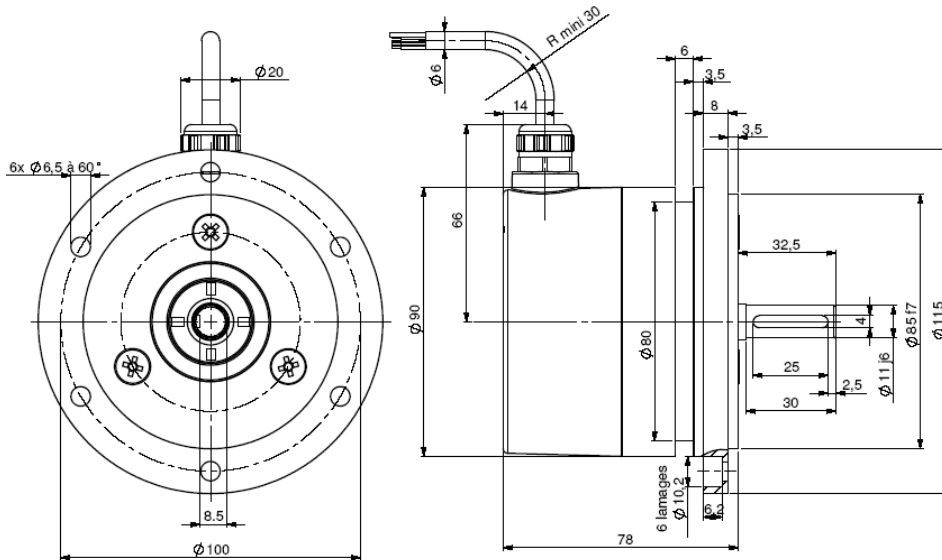
EC type examination certificate

LCIE ATEX & IECEx approved

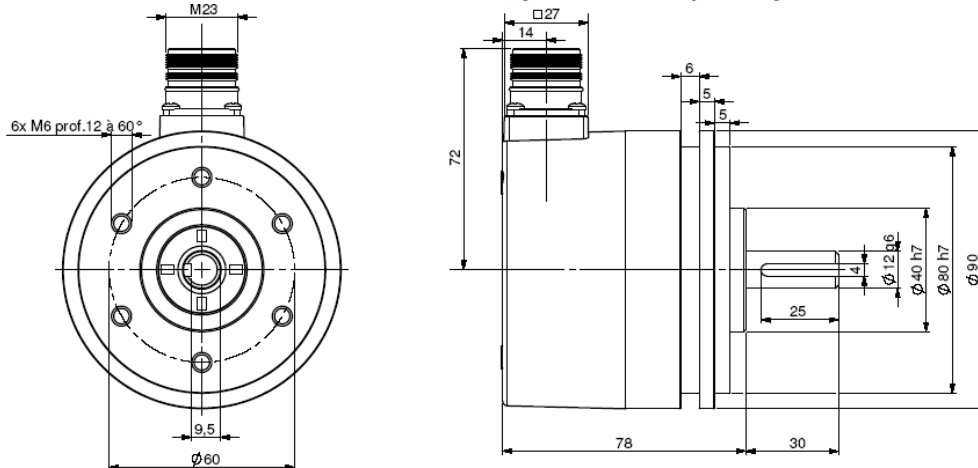
II 1 G

Ex ia IIC T4 Ga

IHM9_11 connection G3R (radial cable)



IHM9_12 connection G6R (radial M23 12 pinouts)



MECHANICAL CHARACTERISTICS

Material	Cover : zinc alloy	Shock (EN60068-2-27)	≤ 500 m.s ⁻² (during 6ms)		
	Stainless steel option		Body: aluminium	Vibration (EN60068-2-6)	≤ 200 m.s ⁻² (10 ... 1 000 Hz)
Shaft	Stainless steel	EMC	EN 61000-6-4, EN 61000-6-2		
Bearings	6001 serie	Insulation	1 000 V		
Maximal loads	Axial : 100 N	Encoder weight approx.	1,1kg zinc alloy cover, alu body		
	Radial : 200 N		1,9kg stainless steel body		
Shaft inertia Torque	≤ 15.10 ⁻⁶ kg.m ²	Operating temperature	- 30... + 70°C (Encoder T°)		
	≤ 10.10 ⁻³ N.m	Storage temperature	- 30... + 80 °C		
Permissible max.speed	9 000 min ⁻¹	Protection(EN 60529)	IP 65		
Continuous max. speed	6 000 min ⁻¹	Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial})			
Shaft seal	Viton double lips	20 N / 30 N : 360	50 N / 100 N : 18	100 N / 200 N : 2,2	

ATEX PROGRAMMABLE INCREMENTAL ENCODERS, IHM9 RANGE

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

Types	Electronic 2P2
	II 1 G Ex ia IIC T4 Ga
Power supply	4.5 to 6Vdc, cons. : 75mA
	U _i ≤10V, I _i ≤750mA, P _i ≤1W C _i =1,3μF, L _i =0
Output signal	RS422, 40 mA, TTL 20mA, F _{max} =300kHz
	U _i ≤10V, I _i ≤200mA, P _i ≤0,1W C _i =1,3μF, L _i =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	Supply	Output stage	Signals	Resolution	Connection	Orientation
IHM9 Aluminium body	11 : 11 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 G8 : M23 12 pins CCW Other: consult us	R : radial
IBM9 Stainless steel body	12 : 12 mm					G3 : PVC cable 8 wires GP : PUR cable 12 wires	Example : R020 : radial cable 2m
Ex: IHM9 _	12 //	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 with 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				
X 1	250	256	360	500	1 024	2 500	3 000	3 600	4 000	4 096	5 000	x 1	ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 2	500	512	720	1 000	2 048	5 000	6 000	7 200	8 000	8 192	10 000	x 2	ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 3	750	768	1 080	1 500	3 072	7 500	9 000	10 800	12 000	12 288	15 000	x 3	ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 4	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 5	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 8	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 10	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 12	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X 16	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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 PROGRAMMABLE INCREMENTAL ENCODERS, IHM9 RANGE

1) Déclaration CE de conformité

2) Nous, société BEI Sensors, certifions que ce matériel :
capteurs antidéflagrants, 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 directive 94/9/CE

Directive 2004/108/CE

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

ATEX : EN 60079-0 (2012), EN 60079-11 (2012),
IECEX : IEC 60079-0 (Ed.6), IEC 60079-11 (Ed.6)

Une étude comparative de la norme EN 60079-0 (version 2009) 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, CEI 61000-4-4, 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 :

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

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

Date :

Personne Autorisée Produits certifiés ATEX

Jean-Marc HUBSCH

1) Declaration EC 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 directive 94/9/CE

Directive 2004/108/CE

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

ATEX : EN 60079-0 (2012), EN 60079-11 (2012),
IECEX : IEC 60079-0 (Ed.6), IEC 60079-11 (Ed.6)

A comparative study of the standard EN 60079-0 (version 2009) 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, CEI 61000-4-4, 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 :

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

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