

ATEX INCREMENTAL ENCODERS, IHM9 RANGE

Intrinsically safe encoders, specially designed for explosive GAS 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

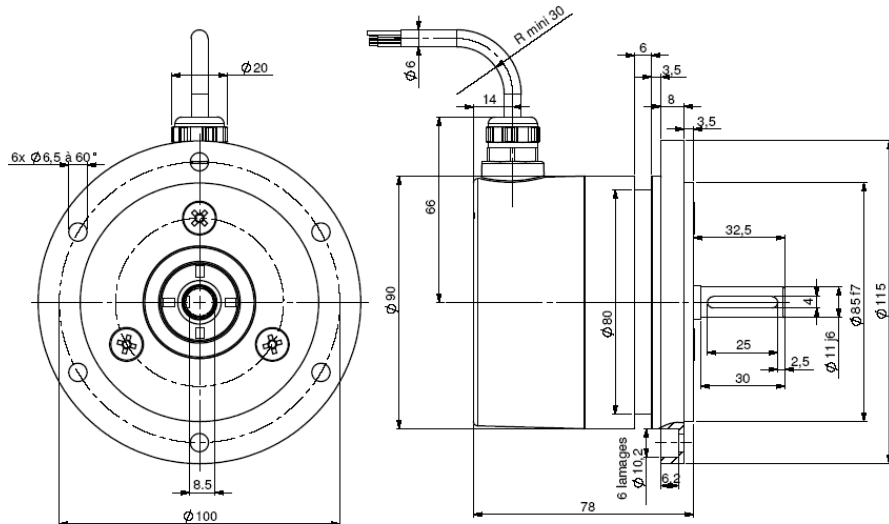
ICIE04 ATEX 6109 X

CE0081

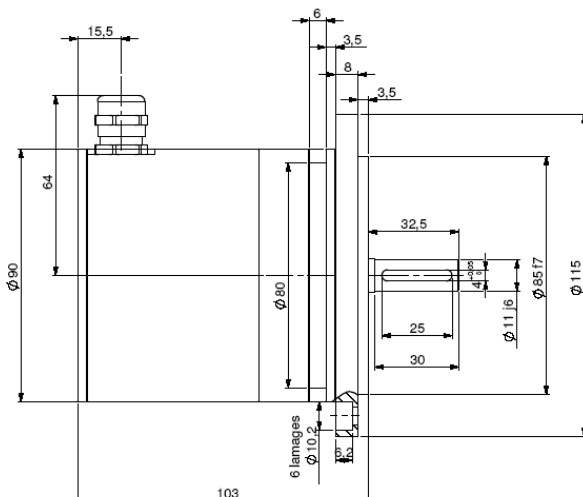
II 1 G/D EEx ia IIC/B/T4 Ex iaD 20 T135°C



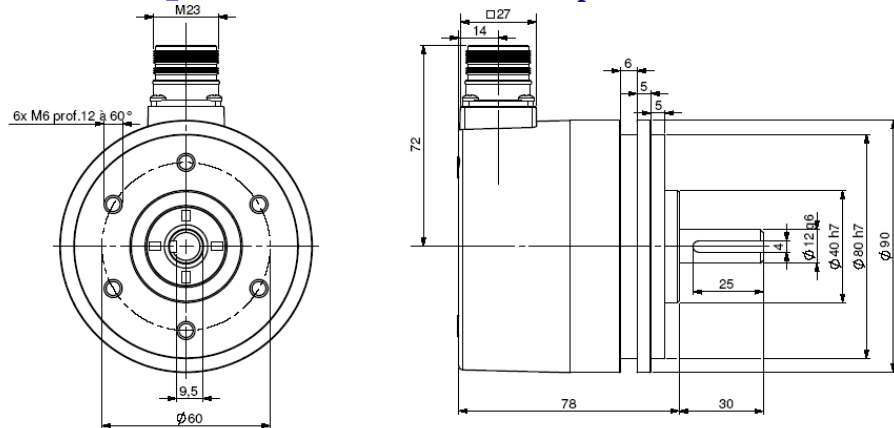
IHM9_11 connection G3R(radial cable)



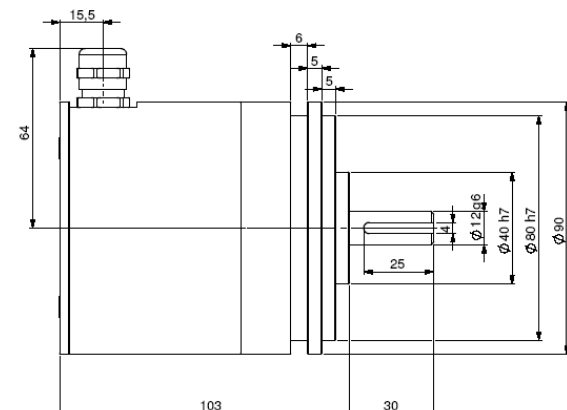
IHM9_11 connection GBR (terminal box)



IHM9_12 connection G6R(radial M23 12 pinouts)



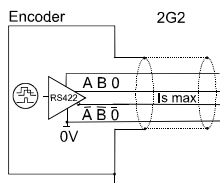
IHM9_12 connection GBR (terminal box)



Material (connector or cable version)	Cover: zamac	Shock (EN60068-2-27)	≤ 500 m.s ⁻² (during 6ms)
Stainless steel option	Embase: aluminium	Vibration (EN60068-2-6)	≤ 200 m.s ⁻² (10 ... 1 000 Hz)
Material (terminal box), Stainless steel option	Cover treated aluminium	EMC	EN 61000-6-4, EN 61000-6-2
	Embase: aluminium	Isolation	1 000 V
Shaft	Stainless steel	Weight (Connector or cable version)	1,1kg zinc alloy cover, alu body
Bearings	6001 serie		2,6kg stainless steel cover & body
Maximal loads	Axial: 100 N	Weight (terminal box)	1,3kg alu. cover & body
	Radial: 200 N		2,8kg stainless steel cover & body
Shaft inertia	≤ 15.10 ⁻⁶ kg.m ²	Operating temperature	- 30... + 70°C (Encoder T _p)
Torque	≤ 10.10 ⁻³ N.m	Storage temperature	- 30... + 100 °C
Permissible max. speed	9 000 min ⁻¹	Protection (EN 60529)	IP 67 (cable), IP 66 (connector)
Continuous max. speed	6 000 min ⁻¹	Theoretical mechanical life time 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 INCREMENTAL ENCODERS, IHM9 RANGE

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

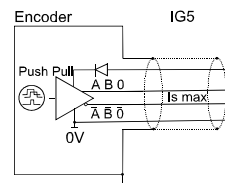


Electronic 2G2

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, TlL20mA, F_{max}=300kHz

Barrier to be used for supply:
U<10V, Li<750mA, Pi<1.875W

Barrier to be used for each output:
U<10V, Li<200mA, Pi<0.5W



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_{max}=300kHz

Barrier to be used for supply:
U<16V, Li<750mA, Pi<3W

Barrier to be used for each output:
U<16V, Li<150mA, Pi<0.6W

Protection against short circuits and inversion of polarity (except 2G2)

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 Signal (square)				Connection	Orientation
IHM9 IHM9 : Stainless steel body IKM9 : Stainless steel cover & body	11 : 11mm 12 : 12mm	Electronic : 2G2, IG5		Signals	resolution	G6: M23 12pins CW	R: radial
		Supply	Output stage	9 : A,A',B,B',0,0/ (0 gated A&B)	80 000 max	G5: M23 12pins CW	
		2: 5Vdc	G2: RS422 driver			G8: M23 12 pins CCW	
		1 8-12Vdc	G5: push-pulldriver			GB: terminal box	
						G3 : PVC cable 8 wires GP: PUR cable 12 wires	Example : R020: 2m radial cable
Ex: IHM9	12 //	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 WITH POWER ON OR IN DUST 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

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 associated with a BEI barrier):

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

System classification: Ex 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 values:

Gases: Ca=3.9µF and L=0.4 mH

Dust: Ca=38.7µF and L=0.8mH

Made in FRANCE

ATEX INCREMENTAL ENCODERS, IHM9 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), CEM 61241-0-Ed.1 (2004), CEM 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, CEM 61000-4-2, CEM 61000-4-3, CEM 61000-4-4, CEM 61000-4-5, CEM 61000-4-6, CEM 61000-4-8, CEM 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

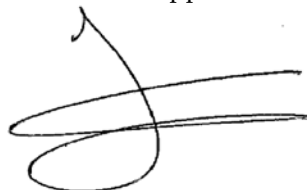
8) La société chargée de la certification **CEM** est nommée ci-après :

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), CEM 61241-0-Ed.1 (2004), CEM 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, CEM 61000-4-2, CEM 61000-4-3, CEM 61000-4-4, CEM 61000-4-5, CEM 61000-4-6, CEM 61000-4-8, CEM 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