

ATEX INCREMENTAL ENCODERS, IBM5 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

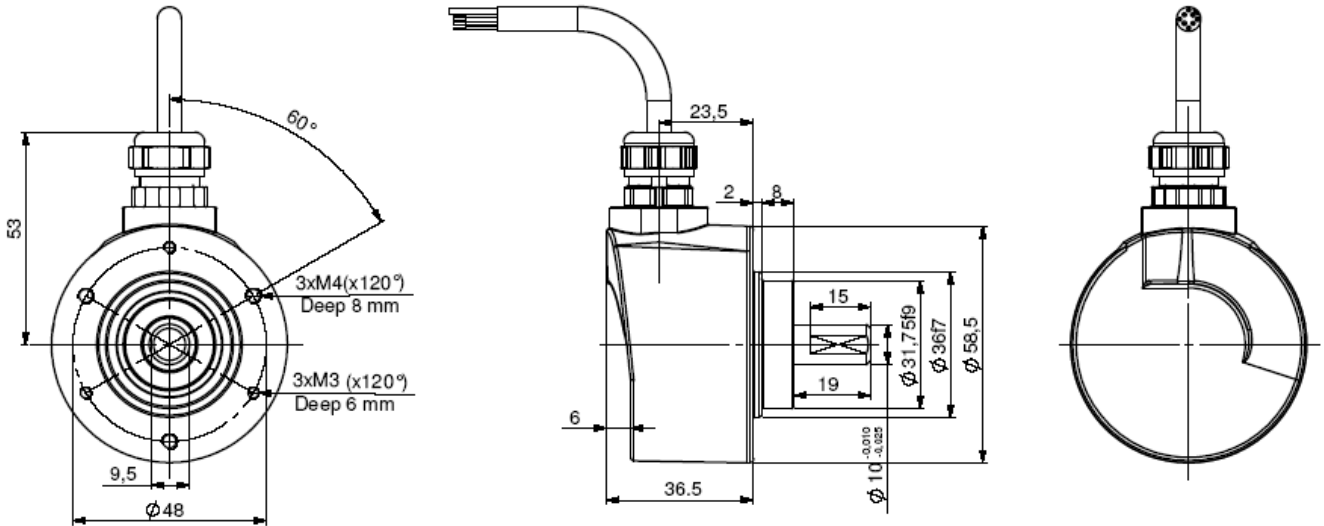
LCIE 04 ATEX 6109 X

CE 0081

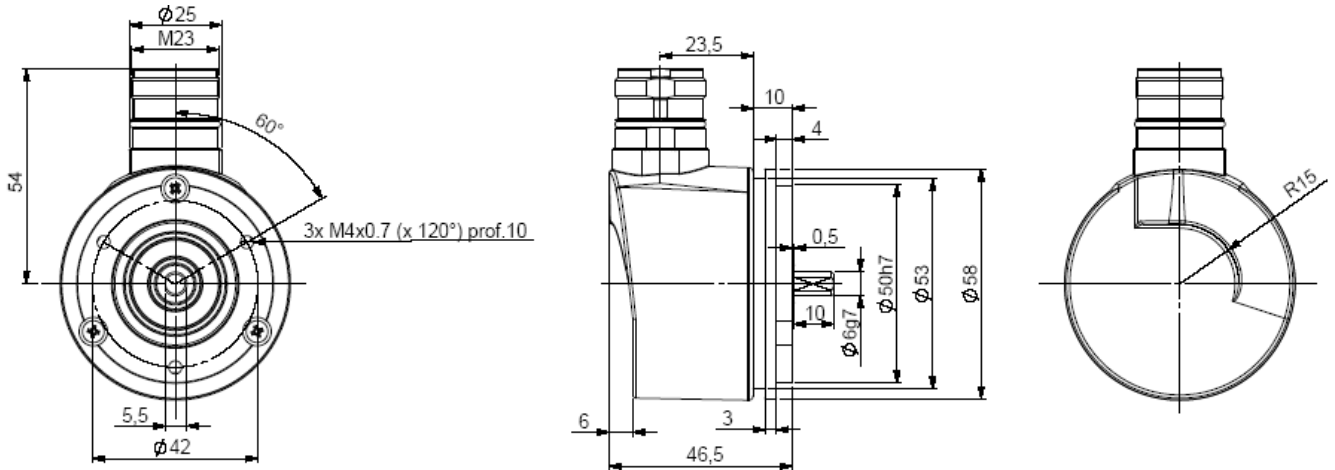
II 1 G/D EEx ia IIB ou IIC T4 Ex iaD 20 T135°C



IBM5_10 connection G3R (radial cable)



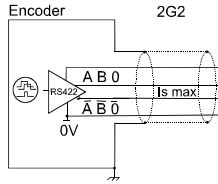
IBM5_06 connection G6R (radial M23), flange 9500/003 mounted onto the body



Material	Cover : zinc alloy	Shock (EN60068-2-27)	≤ 500m.s ⁻² (during 6 ms)
	Body : stainless steel	Vibration (EN60068-2-6)	≤ 100m.s ⁻² (55 ... 2 000 Hz)
	Shaft : stainless steel	EMC	EN 50081-1, EN 61000-6-2
Bearings	6 000 serie	Isolation	1 000 Veff
Maximal loads	Axial : 50 N	Weight (connector)	0,400 kg
	Radial : 100 N	Operating temperature	- 30 ... + 70 °C (encoder T°)
Shaft inertia	≤ 1.10 ⁻⁶ kg.m ²	Storage temperature	- 30 ... + 100 °C
Torque	≤ 4.10 ⁻³ N.m	Protection(EN 60529)	IP 65 (IP67 with flange option)
Permissible max.speed	12 000 min ⁻¹	Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial})	
Continuous max. speed	9 000 min ⁻¹	25 N / 50 N : 99	50 N / 100 N : 12

ATEX INCREMENTAL ENCODERS, IBM5 RANGE

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



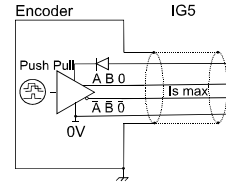
Electronic 2G2

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

II 1 G/D EEx ia IIC T4, Ex iaD 20 T135°C
RS422, 40 mA, TTL 20mA, $F_{max}=300kHz$

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

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



Electronic IG5

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

II 1 G/D EEx ia IIC T4, Ex iaD 20 T135°C
Push Pull 50mA, $F_{max}=300kHz$

Barrier to be used for supply:
 $U_i < 16V$, $I_i < 750mA$, $P_i < 3W$

Barrier to be used for each output:
 $U_i < 16V$, $I_i < 150mA$, $P_i < 0.6W$

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

IBM5	Shaft Ø	Digital Signal (square)				Connection	Orientation
		Electronic : 2G2, IG5		Signals	Resolution		
		Supply	Output stage				
Cover : Zinc alloy	06 : 6mm	2 : 5Vdc 1 : 8 to 12Vdc	G2 : driver 5Vdc RS422 G5 : push-pull	9 : A,A/,B,B/,0,0/ (0 gated A&B)	80 000 max	G6 : M23 12pins CW G5 : M23 12pins CCW G8 : M23 12 pins CCW G1 : solenoid valve 4pins G2 : 5 pin DIN GD : 8 pin DIN	R : radial
Body : Stainless steel	10 : 10mm						
Ex: IBM5 _	10 //	I	G5	9 //	50 000//	GP	R050

Available resolutions (2G2 and IG5): 50 60 100 120 125 127 150 180 200 240 250 256 300 314 360 375 400 500 512 600 720 750 768 800 927 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

LCIE 04 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

LCIE 04 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: **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 EN60079-11, 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, IBM5 RANGE

1) Déclaration de conformité CE

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

IBM5, IBM9, IBO5 et IBK5

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 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2004)
et EN 61241-1 (2004)

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

LCIE 04 ATEX 6109 X

et une notification :

LCIE 03 ATEX Q8060

6) 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

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

IBM5, IBM9, IBO5 and IBK5

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 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2004)
et EN 61241-1 (2004)

5) EC type examination certificate was obtained :

LCIE 04 ATEX 6109 X

and a notification :

LCIE 03 ATEX Q8060

6) 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

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