

ATEX INCREMENTAL ENCODERS, IBO5 RANGE

Intrinsically safe encoders, specially designed for Mines, explosive GAS or DUST atmospheres when used with our barrier 924-60004-002, -003 or -004.

EC type examination certificate of the system with encoder and barrier :

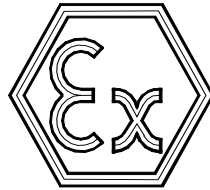
LCIE 04 ATEX 6109 X / 01
LCIE 04 ATEX 6155 X / 01
CE 0081



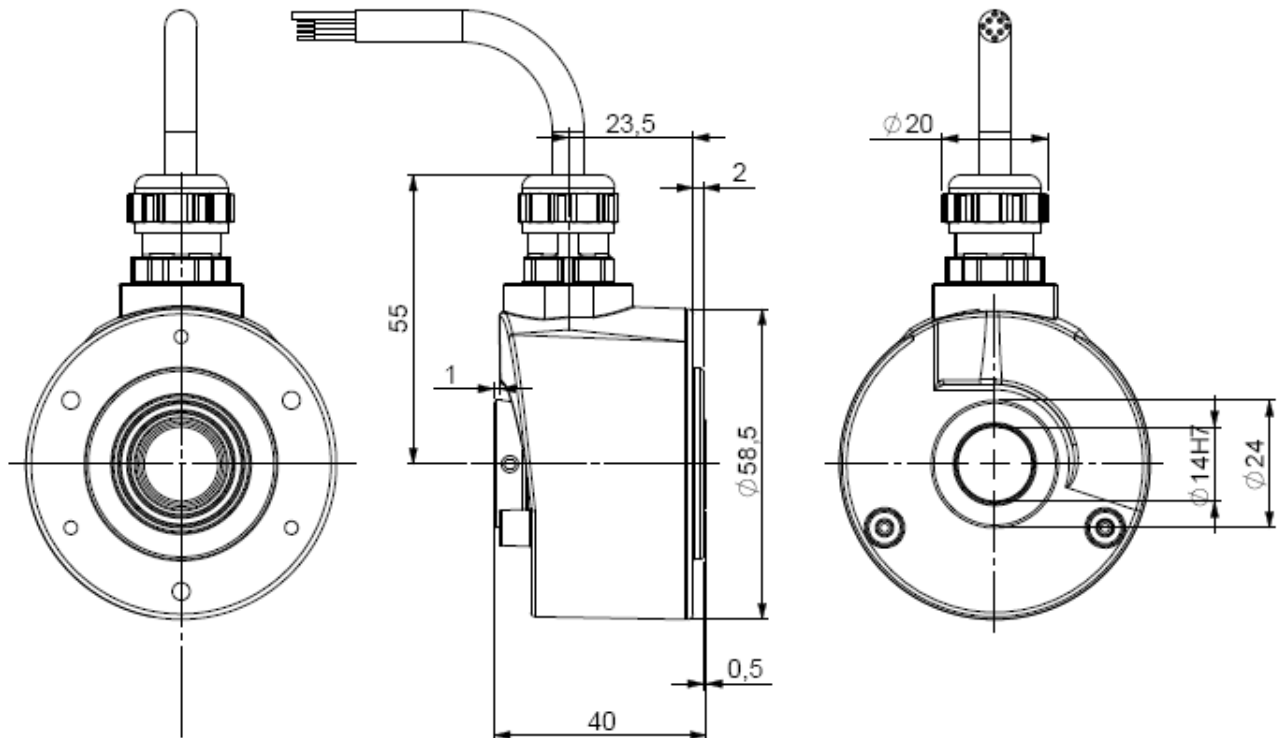
I M1 / (M1) SYST
EEx ia I T135°C



II 1 / (1) G/D SYST
EEx ia IIC T4
Ex iaD 20 T135°C



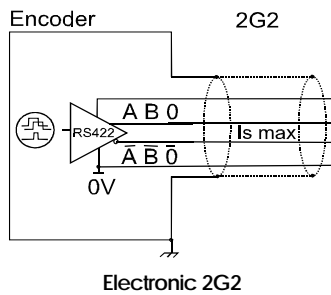
IBO5_14 with connection G3R (radial cable)



Material	Cover : zinc alloy	Shock (EN60068-2-27)	$\leq 500 \text{ m.s}^{-2}$ (during 6 ms)
	Body : stainless steel	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)	0,4 kg
	Radial : 50 N	Operating temperature	- 30 ... + 70°C (encoder T°)
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 min^{-1}	Torque (ring pressure screw)	nominal: 1.5 N.m, break: 2.0 N.m
Continuous max. speed	6 000 min^{-1}	Theoretical mechanical lifetime 10^9 turns (F_{axial} / F_{radial})	
Shaft seal	Viton	10N / 25N : 230	20N / 50N : 29

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



Supply : 4.5 to 6Vdc Consumption : 75mA max
Output RS422, 40 mA, $F_{max}=300kHz$
Protection against short circuits

Intern capacity: 1.3 μ F, intern inductance: 0mH
Barrier to be used for supply:
 $U_i < 10V$, $I_i < 750mA$, $P_i < 1.875W$

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

STANDARD CONNECTION

		-	+	A	B	0	A/	B/	0/	Ground
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

ORDERING REFERENCE

	Shaft \varnothing	Digital Signal (square)				Connection	Orientation
		Electronic		Signals	Resolution		
IBO5	14 : 14mm	Supply 2 : 5Vdc	Output stage G2 : driver 5Vdc RS422	9 : A,A/,B,B/,0,0/ (0 gated A&B)	80 000 max	G3 : PVC cable 8 wires	Example : R020: radial cable 2m
IB05 _	14 //	2	G2	9 //	10 000//	G3	R020

Available resolutions : 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 : 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 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 /01 : 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]. These devices must have electrical parameters that have a compatible supply with the above mentioned electronics, like BEI barriers.

LCIE 04 ATEX 6155 X /01 : 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**

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 $L=1.2\mu H/m$, or with cables with other C and L values, With respect to the maximum authorized values:

Mines & Gases : **Ca=3.9 μ F and L=0.4 mH**
Dust : **Ca=38.7 μ F and L=0.8mH**

Made in FRANCE