# IHM5

## ATEX INCREMENTAL ENCODERS

## Introduction

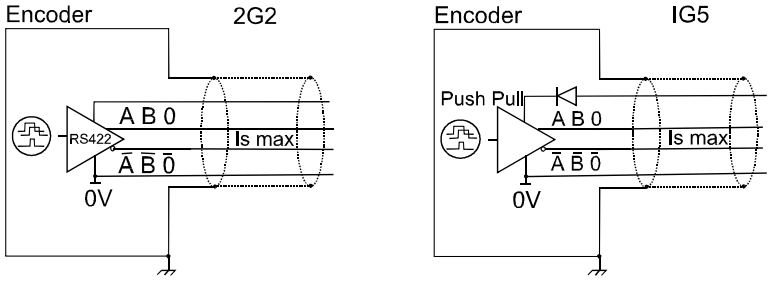
Intrinsically safe encoders, specially designed for explosive GAS atmospheres.

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

## SPECIFICATIONS

| | |
|---|---|
| **Material** | **Cover:** Zinc Alloy<br>**Body:** Aluminum<br>**Shaft:** Stainless Steel |
| **Bearings** | 6000 series |
| **Maximal Loads** | **Axial:** 50 N<br>**Radial:** 100 N |
| **Shaft Inertia** | $\leq 1.10^{-6}$ kg.m$^2$ |
| **Torque** | $\leq 4.10^{-3}$ N.m |
| **Permissable Max. Speed** | 12,000 min$^{-1}$ |
| **Continuous Max. Speed** | 9,000 min$^{-1}$ |
| **Shocks (EN60068-2-27)** | $\leq$ 500 m.s$^{-2}$ (during 6 ms) |
| **Vibrations (EN60068-2-6)** | $\leq$ 100 m.s$^{-2}$ (55… 2 000 Hz) |
| **EMC** | EN 50081-1, EN 61000-6-2 |
| **Insulation** | 1000 Veff |
| **Encoder Weight (Approx.)** | 0,300 kg |
| **Operating Temperature** | - 30 ... + 70°C (encoder T°) |
| **Storage Temperature** | - 40 ... + 100°C |
| **Protection (EN 60529)** | IP 65 (IP67 with flange option) |
| **Theoretical mechanical lifetime $10^9$ turns ($F_{axial}$ / $F_{radial}$)** | |
| **25 N / 50 N** | 99 |
| **50 N / 100 N** | 12 |

## Output Electronic / Supply
## Digital Signals (Square Wave Signals)




| Type | Electronic 2G2 | Electronic IG5 |
|---|---|---|
| ⟨Ex⟩ | ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga | ⟨Ex⟩ 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<br>Ci=1,3µF, Li=0 | Ui≤16V, Ii≤750mA, Pi≤1W<br>Ci=1,3µF, Li=0 |
| **Output Signal** | RS422, 40 mA, TTL 20mA, $F_{max}$=300kHz | Push Pull 50mA, $F_{max}$=300kHz |
| | Ui≤10V, Ii≤200mA, Pi≤0,1W<br>Ci=1,3µF, Li=0 | Ui≤16V, Ii≤150mA, Pi≤0,1W<br>Ci=1,3µF, Li=0 |
| **Cable Linear Capacitance** | 100pF/m | |
| **Cable Linear Inductance** | 1,2µH/m | |

## Standard Connections

| | | - | + | 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 |

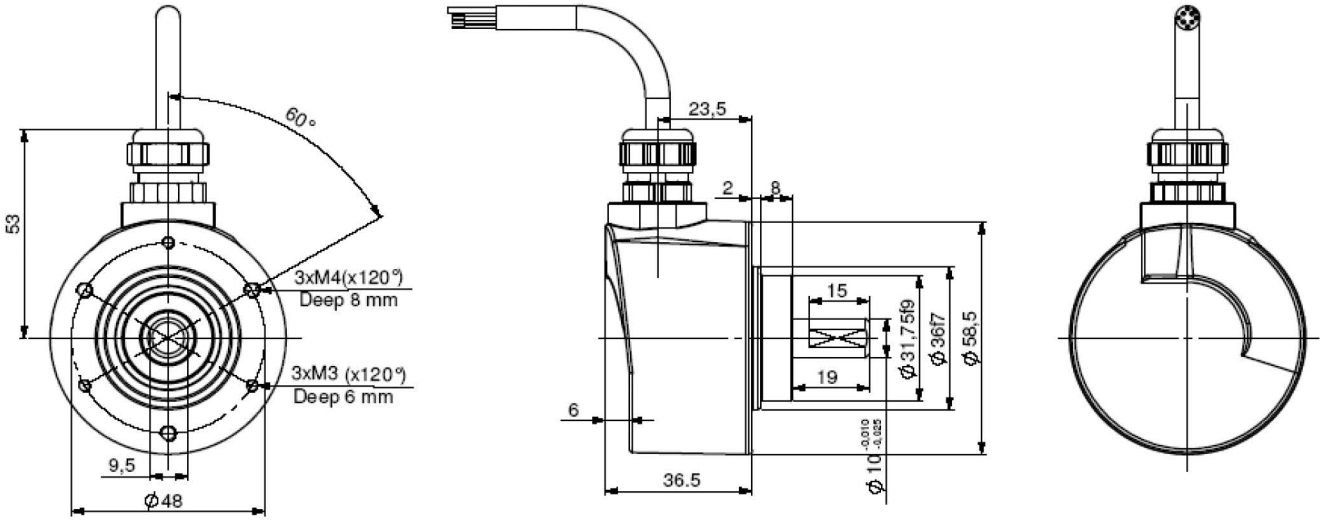
NEVER CONNECT/DISCONNECT OR OPEN THE ENCODER UNDER POWER SUPPLY IN DUST ENVIRONMENTS
RESPECT THE MOUNTING TOLERANCES AND THE MECHANICAL RESTRICTIONS IN ORDER TO REMAIN IN LINE WITH THE MAXIMAL SURFACE TEMPERATURE VALUE ALLOWED BY THE CLASS T4 REQUIREMENTS

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**

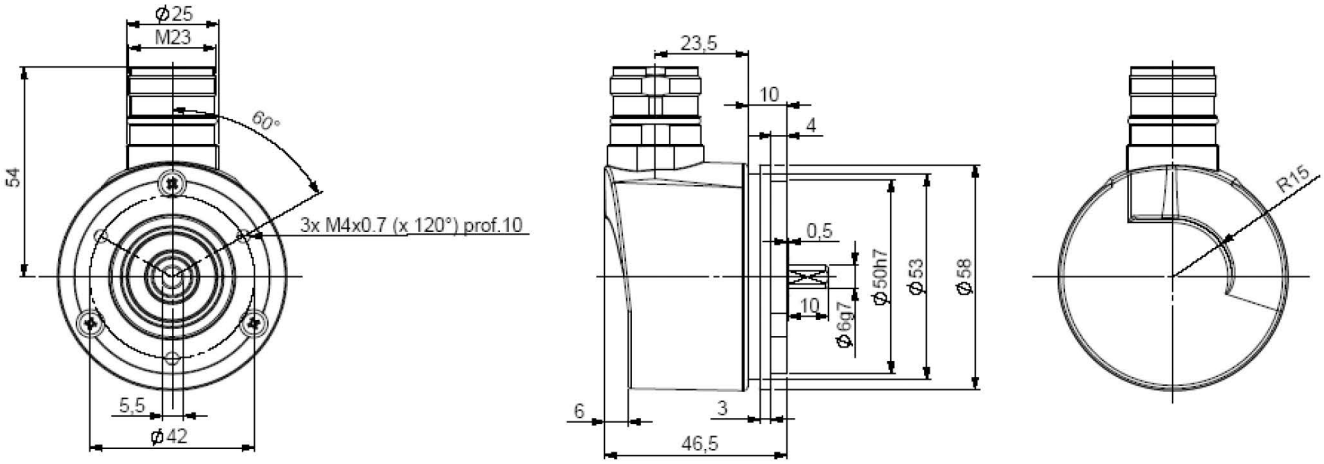
## DIMENSIONS

Dimensions in mm

### IHM5_10 connection G3R (radial cable)




### IHM5_06 connection G6R (radial M23), flange 9500/003* mounted onto the body




** To be ordered seperately.*

## ORDERING OPTIONS

**Example : IHM5_10//2G29//10000//GPR050**

Contact the factory for special versions, ex: special flanges, electronics, connections…

**IHM5 _ 10 // 2 G2 9 // 10000 // GP R050**

### Family

**IHM5:** Aluminum body
**IXM5 :** Stainless steel body

### Shaft Ø

**06:** 6mm
**10:** 10mm

### Supply

**2:** 5Vdc
**I:** 8 to 12Vdc

### Output Stage

**G2:** driver 5Vdc RS422
**G5:** push-pull

### Signals

**9:** A,A/,B,B/,0,0/ (0 gated A & B)

### Resolution [A]

**80000** max

### Connection

**G6:** M23 12 pins CW
**G8:** M23 12 pins CCW
Other: consult us

**G3:** PVC cable 8 wires
**GP:** PUR cable 12 wires

### Connection Orientation

**R:** radial

Example:
**R020:** radial cable 2m

## GENERAL NOTES

[A] **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

**EC type examination certificate**
**LCIE ATEX & IECEX approved**
II 1 G
Ex ia IIC T4 Ga (electronic 2G2) or Ex ia IIB T4 Ga (electronic IG5).

**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+A112013) 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**

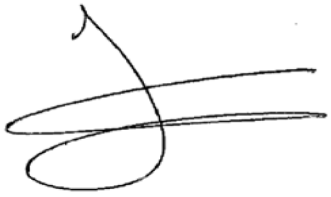
7) The application of the following standards took part in obtaining certification:
EN 60-529, NFC 23-520, NFC 23-539, EN 50081-1, EN 55022 classe B, EN 55014, EN 61000-6-2, CEI 61000-4-2, CEI 61000-4-3, CEI61000-4-4, CEI 61000-4-5, CEI 61000-4-6, CEI 61000-4-8, CEI 61000-4-11

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

ATEX Certified Product Approved Person







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