

## ATEX ABSOLUTE SINGLETURN CANopen ENCODER, CEUX RANGE

### ATEX certified Explosion-proof encoders.

Explosion-proof rotary encoders for hazardous environments gas & dust.  
Robust design for heavy-duty applications.  
Hollow through shaft up to 30mm.  
Application fields: explosive atmospheres.

### LCIE ATEX & IECEx approved

I M2  
Ex d I Mb

**CANopen**

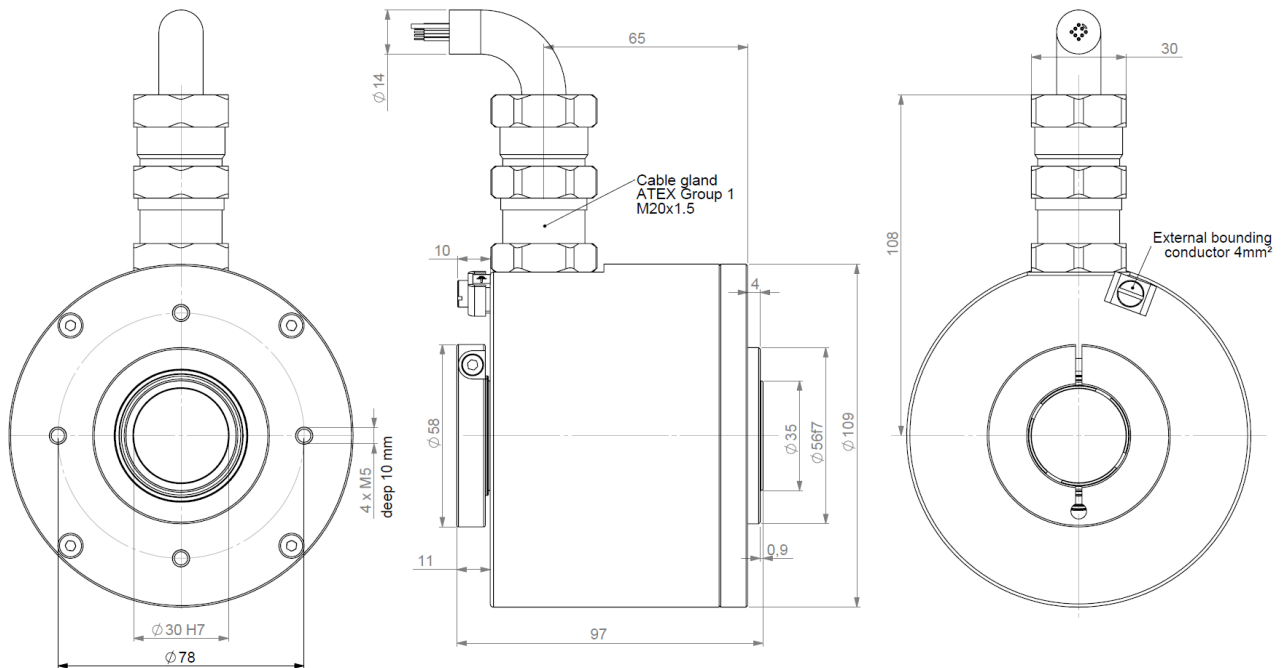
DS 301 V4.02  
DS 406 V3.1

**MINING**



CEUX / CAUX is also available with II 2 GD certification: consult us.

### CEUX DIMENSIONS



Material	Cover: Stainless steel	Shock (EN60068-2-27)	$\leq 300 \text{ m.s}^{-2}$ (during 6 ms)
	Body: Stainless steel	Vibration (EN60068-2-6)	$\leq 100 \text{ m.s}^{-2}$ (10 ... 2000 Hz)
Shaft	Stainless steel	EMC	EN 61000-6-4, EN 61000-6-2
Bearings	Ball bearings	Isolation	500 V (1 min.)
Maximal load	Axial : 50 N	Weight	5kg
	Radial : 80 N	Operating temperature	- 20... + 80 °C (encoder T°)
Shaft Inertia	$\leq 50 \cdot 10^{-6} \text{ kg.m}^2$	Storage temperature	- 20... + 80 °C
Torque	$\leq 25 \cdot 10^{-3} \text{ N.m}$	Protection(EN 60529)	IP 65
Permissible max. speed	4 500 min <sup>-1</sup>	Theoretical mechanical lifetime 10 <sup>9</sup> turns (F <sub>axial</sub> / F <sub>radial</sub> )	
Continuous max speed	3 000 min <sup>-1</sup>	25 N / 40 N	140
Shaft seal	Nitril	50 N / 80 N	17

T <sub>amb</sub>	Temperature class for gas atmosphere	Temperature class for dust atmosphere
-20°C ≤ Ta ≤ +40°C	T6	T80°C
-20°C ≤ Ta ≤ +55°C	T5	T95°C
-20°C ≤ Ta ≤ +60°C	T4	T100°C
-40°C ≤ Ta ≤ +70°C	T4	T110°C



## ATEX ABSOLUTE SINGLE TURN CANopen ENCODER, CEUX RANGE

### Programmable Parameters

**Resolution:** defines the number of codes per revolution (0 - 8 192)

**Transmission speed:** configurable from 10kbaud (1 000m) to 1 Mbaud (40 m) ; default value: 20 Kbaud

**Address:** defines the position of the encoder on the bus (0 to 127, default value: id = 1)

**Direction of rotation:** Defines the direction of rotation of the encoder

**2 programmable markers:** one high marker and one low marker

**Reset to a value (X) :** defines the present position of the encoder (immobile shaft)

### The Communication Modes

The interrogation of the encoders could be done according to the following 3 modes :

**POOLING Mode:** The encoder answers the requests of the master. This mode makes it possible to program and request the encoders parameters and position

**CYCLICAL Mode:** The encoders transmits its position in asynchronous mode. The frequency of the emission is defined by the Cyclical Timer, programmable from 0 to 65 535 ms

**SYNCHRO Mode:** The encoders transmits its position to the master in a synchronous

### CANOPEN CONNECTION

WH	BL	1	2	3	4
CAN LOW	CAN HIGH	+ 5/30Vdc	0V	+ 5/30Vdc	0V

Nota : Refer to the bus standards for the maximal derivation length.

### ORDERING REFERENCE

	Shaft Ø	Mechanics	Power supply	Output stages	Code	Resolution	Connection	Connection orientation
CEUX (stainless steel)	S30 30mm	xx : M2	P : 5 to 30Vdc	BB : CANopen	B: Binary	13 : 8192 points per turn (2 <sup>13</sup> )	00: cable	Example : R020 : 2m radial cable R050 : 5m radial cable
CEUX	S30 /	xx /	P	BB	B //	13 //	00	R050

### SPECIAL CONDITIONS FOR SAFE USE

The gaps of the different flamepath are less than the values specified in the tables of the IEC 60079-1 standard.  
The width of the different flameproof joints are superior to these specified in tables of IEC 60079-1 standard.

### ASSEMBLY CAUTION

**NEVER OPEN THE ENCODER**  
**NEVER CONNECT/DISCONNECT UNDER POWER SUPPLY/IN PRESENCE OF DUSTS ATMOSPHERE**

For electrical installation use the standard EN/IEC 60079-14.

The customer obliges to take up and to use our products, according to our specifications and to the manners of the profession. Our company would not be responsible for any defect resulting from a defective or erroneous assembly, from a use superior to the standard, or in abnormal conditions. The breakdowns resultant of shocks, bad electric supply, put in low capacity or overcapacity of the product, the environment of bad conditions (humidity, projection, dust, etc) cannot be imputed to us. The converter doesn't require any maintenance. Any encoder presenting a dysfunction will have to be the object of immediate return for control in our facilities. The encoder mustn't be open in any case (cable gland and/or cover).

An earth situated on the cover must be linked with the ground of the installation.

Made in FRANCE

## ATEX ABSOLUTE SINGLETURN CANopen ENCODER, CEUX RANGE

### 1) Déclaration UE de conformité

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

**CEUX, GEUX, NEUX, PEUX**

3) Avec les inscriptions suivantes :

**I M2**

**Ex d I Mb**

A été conçu et fabriqué conformément à la directive applicable suivante :

**ATEX : 2014/34/UE**

**CEM : 2014/30/UE**

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

(\*) ATEX: EN60079-0:2012+A11:2013, EN60079-31:2014 et EN60079-1:2014

IECEX: IEC60079-0:2011+IS1 2013, IEC60079-1:2014, IEC60079-31:2013

(\*) Une étude comparative des normes EN 60079-0 (2009 et 2012+A11 2013), EN 60079-31 (2009 et 2014) et EN 60079-1 (2007 et 2014) montre que le matériel n'est pas concerné par les modifications substantielles.

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

**LCIE 03 ATEX 6407**

et une notification :

**LCIE 03 ATEX Q8060**

6) Un certificat de conformité IECEx a été obtenu :

**IECEX LCIE 13.0030X**

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, CEI61000-4-4, 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

### 1) EU Declaration of conformity

2) We, BEI Sensors, certify that this material : sensor explosion-proof standard

**CEUX, GEUX, NEUX, PEUX**

3) With the following inscriptions :

**I M2**

**Ex d I Mb**

Conceived and manufactured has the directive applicable following :

**ATEX : 2014/34/EU**

**EMC: 2014/30/EU**

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

(\*) ATEX: EN60079-0:2012+A11:2013, EN60079-31:2014 and EN60079-1:2014

IECEX: IEC60079-0:2011+IS1 2013, IEC60079-1:2014, IEC60079-31:2013

(\*) A comparative study of the standards EN 60079-0 (2009 and 2012+A11 2013), EN 60079-31 (2009 and 2014) and EN 60079-1 (2007 and 2014) shows that the product is not concerned by the substantial modifications.

5) EC type examination certificate was obtained :

**LCIE 03 ATEX 6407**

and a notification :

**LCIE 03 ATEX Q8060**

6) IECEx certificate of conformity was obtained :

**IECEX LCIE 13.0030X**

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 :

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

Date :

ATEX Certified Product Approved Person  
Jean-Marc HUBSCH