

ATEX ABSOLUTE SINGLETURN SSI ENCODER, CAMX RANGE

ATEX certified Explosion-proof encoders

Explosion-proof rotary encoders for hazardous environments gas & dust.

Robust design for heavy-duty applications.

Application fields: explosive atmospheres except for firedamp mines.

LCIE ATEX & IECEx approved

II 2 GD

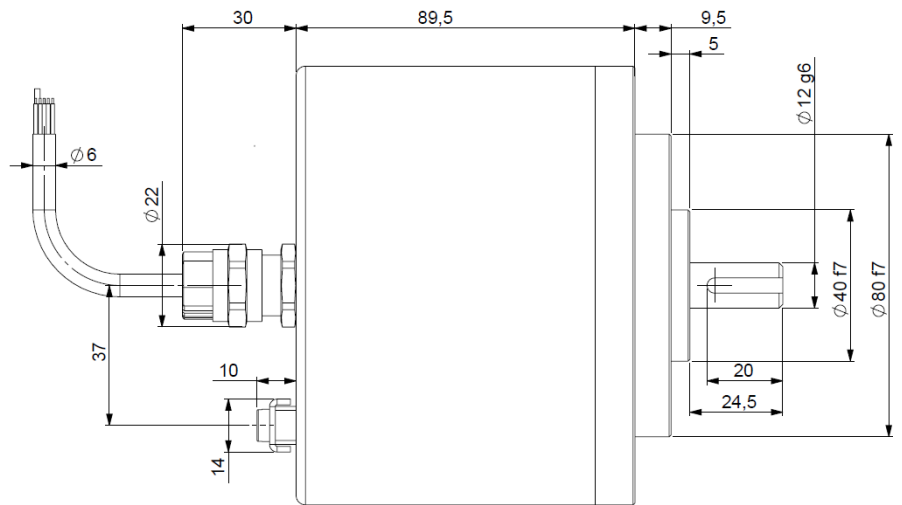
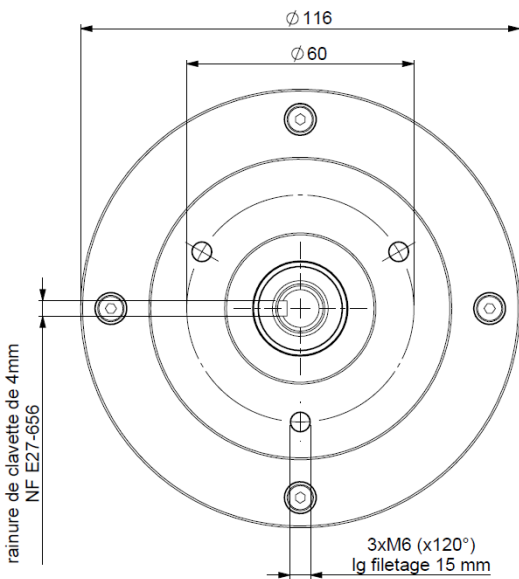
Ex d IIC T6, T5, T4 Gb

Ex tb IIIC T(*)°C Db IP 6x

* See below table



CAMX – CEMX DIMENSIONS



| | | | | |
|------------------------------------|---|---|---|---------------------|
| Material Stainless steel option | Cover : aluminium | Shock (EN60068-2-27) | ≤ 500 m.s ⁻² (during 6ms) | |
| | Body: aluminium | Vibration (EN60068-2-6) | ≤ 200 m.s ⁻² (10 ... 1 000 Hz) | |
| Shaft | Stainless steel | CEM | EN 61000-6-4, EN 61000-6-2 | |
| Bearings | Ball bearings | Isolation | 1 000 V eff | |
| Maximal load | Axial : 50 N | Weight | 3,5kg aluminium body and cover | |
| | Radial : 100 N | | 7,2kg stainless steel body and cover | |
| Shaft inertia | ≤ 16.10 ⁻⁶ kg.m ² | Operating temperature | - 20... + 90 °C (encoder T°) | |
| Torque | ≤ 15.10 ⁻³ N.m | Storage temperature | - 40... + 100 °C | |
| Permissible max.speed | 6 000 min ⁻¹ | Protection(EN 60529) | IP 65 | |
| Continuous max. speed | 4 000 min ⁻¹ | Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial}) | | |
| Shaft seal | Nitril | 20 N / 30 N : 360 | 50 N / 100 N : 18 | 100 N / 200 N : 2,2 |

| T _{amb} | 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 |

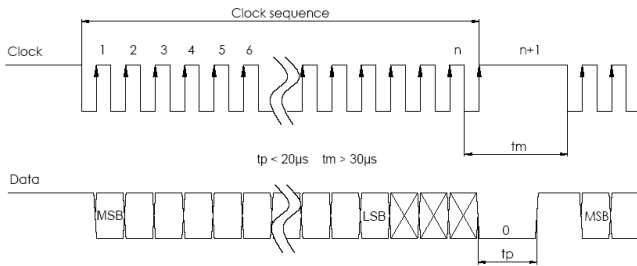


ATEX ABSOLUTE SINGLETURN SSI ENCODER, CAMX RANGE

ELECTRICAL CHARACTERISTIC

| | | | |
|------------------------|---------------------|--------------------------|------------------------------------|
| Input signal clock CLK | per optocoupler | Consumption without load | Max. 100mA |
| Output signal DATA | line - driver RS422 | Clock frequency | 100kHz to 1MHz for 13 bits encoder |
| Power supply | 5 – 30Vdc | Interrogation frame | n=13 bits for 13 bits resolution |
| Introduction | < 200ms | | n=21bits for >13bits resolution |

SSI TRANSMISSION



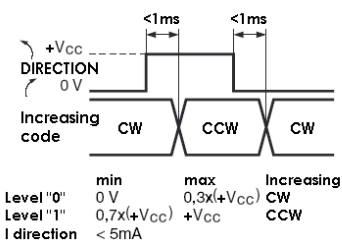
| | |
|--------------|--|
| Transmission | Transmission up to 400m at 100kHz in function of the cable characteristics |
| Cable | High security of transmission by using shielded cable and twisted pairs |

* Consult us for length > 100m

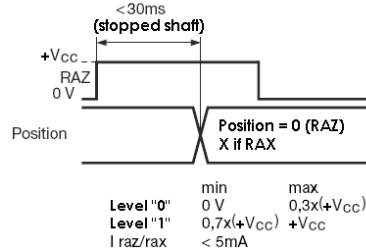
CONNECTION

| Type | + Vcc | 0 V | Clk+ | Data+ | RAZ | Data- | Clk- | DIRECTION |
|------|----------------------|----------------------|-------------|------------|------------|------------|-------------|-------------|
| S5 | BN/GN Brown/Green | WH/GN White/Green | GN Green | GY Grey | BU Blue | PK Pink | BN Brown | WH White |

DIRECTION input



RAZ / RAX input



Nota :

Do not connect other pinouts, connect DIRECTION and RAZ to a potential (RAZ at 0V if not used)

ORDERING CODE

| | Shaft Ø | Supply | Output stage | Code | Resolution | Connection | Connection orientation |
|--|----------------|---------------|---|--------------------------------------|---|-----------------------|--|
| CEMX (stainless steel) CAMX (aluminium) | 12:12mm | P : 5 - 30Vdc | CS : SSI without parity CP : SSI with even parity CI : SSI with odd parity | B : Binary G : Gray | Power of 2 13 : 13 bits standard option: 14 : 14 bits to 16 : 16 bits | S5 : PUR cable | Example : A030 : radial cable 3m |
| CEMX | _ 12 // | P | CS | G // | 13 // | S5 | A030 |

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 SSI ENCODER, CAMX RANGE

1) Déclaration UE de conformité

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

CAMX, CEMX, GAMX, GEMX, NAMX, NEMX, PAMX, PEMX

3) Avec les inscriptions suivantes :

**CE 0081 II 2 GD, Ex d IIC T6, T5, T4 Gb
Ex tb IIIC T(*)°C Db IP 6x**

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, EN60079-1:2014 , EN60079-31:2014

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 60079-1 (2007 et 2014) et EN 60079-31 (2009 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 6235

et une notification :

LCIE 03 ATEX Q 8060

6) Un certificat de conformité IECEx a été obtenu :

IECEX LCIE 13.0029X

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

Date :

ATEX Certified Product Approved Person
Jean-Marc HUBSCH

1) EU Declaration of conformity

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

CAMX, CEMX, GAMX, GEMX, NAMX, NEMX, PAMX, PEMX

3) With the following inscriptions :

**CE 0081 II 2 GD, Ex d IIC T6, T5, T4 Gb
Ex tb IIIC T(*)°C Db IP 6x**

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, EN60079-1:2014, EN60079-31:2014

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 60079-1 (2007 and 2014) and EN 60079-31 (2009 and 2014) shows that the product is not concerned by the substantial modifications.

5) EC type examination certificate was obtained :

LCIE 03 ATEX 6235

and a notification :

LCIE 03 ATEX Q 8060

6) IECEx certificate of conformity was obtained :

IECEX LCIE 13.0029X

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

Numéro d'identification : 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