# Fiche technique

# Informations sur la gamme de codeurs rotatifs

Art. n°: 91000210

EM-M 058 BB SSI



Figure pouvant varier

**Contenu**


- Caractéristiques techniques
- Code d'article

| | |
|---|---|
| **Série** | EM-M 058 BB |
| **Principe de base** | absolu |
| **Principe de fonctionnement** | magnétique |
| **Diamètre de bride** | Ø 58 mm |
| **Type de bride** | Alésage borgne |
| **Arbre plein/arbre creux** | Arbre creux |
| **Diamètre d'arbre** | Ø 10 mm |
| | Ø 12 mm |
| | Ø 14 mm |
| | Ø 15 mm |
| | Ø 6 mm |
| | Ø 7 mm |
| | Ø 8 mm |
| **Tension d'alimentation** | 4,75 ... 32 V CC |
| **Commande de sortie** | A-C |
| | M12A08S |
| | M12R08S |
| | R-C |
| | R-IPC |
| **Nombre d'impulsions** | 1 ... 16 Bit / 0 ... 43 Bit |

# Caractéristiques techniques

Leuze

## Encoder EM-M 058 BB SSI

### Mechanical Data

| | |
|---|---|
| Flange | hollow shaft (blind-bored) |
| Flange material | aluminum |
| Housing material | Aluminum die cast, powder coated; Integrated magnetic shielding |
| Torque supports | incl. 1 torque support EA 10001 |
| - 1. Spring plate compensation | axial: ±0.8 mm [0.0315"], radial: ±0.2 mm [0.0079"] |
| - Max. operating speed | 6000 rpm up to max. protection rating +60 °C |
| - 2. Cylinder pin 4 mm | needs accessories EA 10005 |
| - Compensation | axial: ±0.5 mm [0.0197"], radial: ±1.5 mm [0.0591"], Max. operating speed: 3000 rpm |
| Flange diameter | Ø 58 mm [Ø 2.283"] |

### Shaft(s)

| | |
|---|---|
| Shaft material | stainless steel |
| Starting torque | approx. 1.6 Ncm [2.266 in-ozf] at ambient temperature |
| Fixing | permanently attached clambing ring |
| | |
| **Shaft** | Ø 6 mm [Ø 0.236"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 6.35 mm [Ø 1/4"] Order No: 2Z |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 7 mm [Ø 0.276"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 8 mm [Ø 0.315"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 9.525 mm [Ø 3/8"] Order No: 4Z |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 10 mm [Ø 0.394"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 12 mm [Ø 0.472"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 12.7 mm [Ø 1/2"] Order No. 3Z |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 14 mm [Ø 0.551"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| **Shaft** | Ø 15 mm [Ø 0.591"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

# Caractéristiques techniques

## Encoder EM-M 058 BB SSI

| | |
|---|---|
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

### Bearings

| | |
|---|---|
| Bearings type | 2 precision ball bearings |
| Nominale service life | 1 x 10'9 revs. at 100 % rated shaft load<br>1 x 10'10 revs. at 40 % rated shaft load<br>1 x 10'11 revs. at 20 % rated shaft load |
| Max. operating speed | 6000 rpm |

### Machinery Directive: basic data safety integrity level

| | |
|---|---|
| $MTTF_d$ | 1000 a |
| Mission time (TM) | 20 a |
| Nominale service life (L10h) | 1 x 10'11 revs. at 20 % rated shaft load and 6000 rpm |
| Diagnostic coverage (DC) | 0 % |

### Electrical Data

| | |
|---|---|
| Power supply/Current consumption | 4,75 VDC up to 32 VDC: typ. 50 mA |
| Power consumption | max. 0.5 W |
| Power supply/Current consumption | 4,75 VDC up to 5,5 VDC: typ. 80 mA |
| Power consumption | max. 0.44 W |
| Operating principle | magnetic |

### Sensor data

| | |
|---|---|
| Single-turn technology | innovative hall sensor technology |
| Single-turn resolution | up to 65,536 steps/360° (16 bit) |
| Single-turn accuracy | ± 0.0878° (≤ 12 bit) |
| Single-turn repeat accuracy | ± 0.0878° (≤ 12 bit) |
| Internal cycle time | ≤ 600 µs |
| Multi-turn technology | Wiegand wire technology no battery and no gear. |
| Multi-turn resolution | up to 43 bit. |

### Environmental data

| | |
|---|---|
| ESD (DIN EN 61000-4-2): | 8 kV |
| Burst (DIN EN 61000-4-4): | 2 kV |
| Includes EMC: | DIN EN 61000-6-2<br>DIN EN 61000-6-3<br>DIN EN 61326-1 |
| Vibration:<br>(DIN EN 60068-2-6) | 300 $m/s^2$ (10 Hz up to 2000 Hz) |
| Shock:<br>(DIN EN 60068-2-27) | 5000 $m/s^2$ (6 ms) |
| Electrial Safety: | according DIN VDE 0160 |
| Turn on time: | <1,5 s |

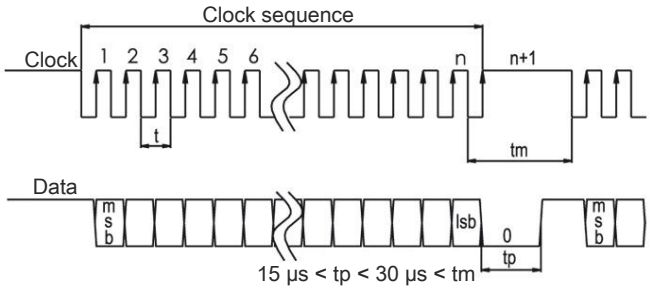
### Duty information

| | |
|---|---|
| Customs tariff number: | 90318020 |
| Country of origin: | Germany |

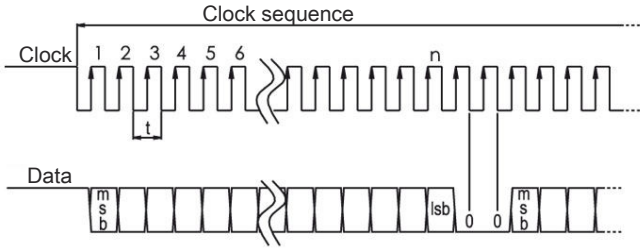
### Interface

| | |
|---|---|
| Interface: | SSI |
| Clock input: | via opto-coupler;<br>I > 1.6 mA; U > 2.2 V |
| Clock frequency: | 100 kHz up to 500 kHz,<br>up to 2 MHz on request |
| Data output: | RS485/RS422 compatible |
| Output code: | gray or binary |
| SSI output: | Angular-/position value |
| Parity bit: | optional (even/odd) |
| Error bit: | optional |
| Turn on time: | <1,5 s |
| Configuration inputs<br>Positive direction of counting:<br>(View on shaft) | DIR = GND -> cw<br>DIR = +UB -> ccw |
| Set to zero: | Set: Preset = +UB for 2 s<br>Deaktivate: Preset = GND |

**Transmission protocoll SSI Single transmission:**




**Transmission protocol SSI Multipath transmission:**




| **LED-behaviour:** | |
|---|---|
| At Start / while booting: | - red gleam (< 2,3 s) |
| Malfunction: | - constant red gleam (> 2,3 s) |
| Normal function: | - constant green gleam |
| No supply: | - no gleam |

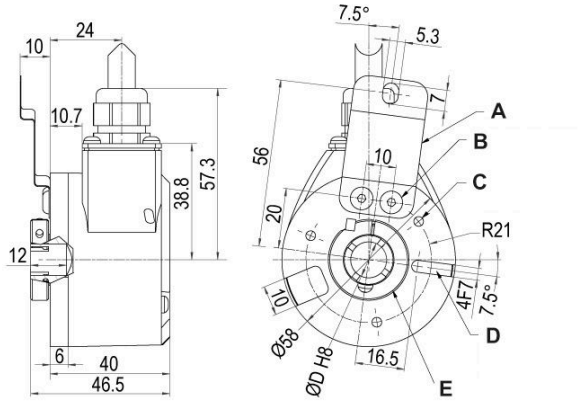
### General Data

| | |
|---|---|
| Weight | approx. 220 g [7.76 oz] |
| Connections | cable or connector outlet |
| Protection rating<br>(EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65;<br>cable outlet R-IPN: IP40, A-IPN: IP20 |
| Operating temperature | -40 °C up to +85 °C<br>[-40 °F up to +185 °F] |
| Storage temperature | -40 °C up to +100 °C<br>[-40 °F up to +212 °F] |

# Caractéristiques techniques

## Encoder EM-M 058 BB SSI

### Cable connection, R-C radial, with 2 m cable




All dimensions in mm

L3 → R-C

**A** Spring plate as torque support
**B** 2x M4x0.76H, 6 deep
**C** 3x M4x0.7 6H, 6 deep
**D** Groove for cylinder pin as torque support DIN 7-D4mm
**E** Clamping ring

#### Description

| | |
|---|---|
| **R-C** | radial, shield connected to encoder housing |

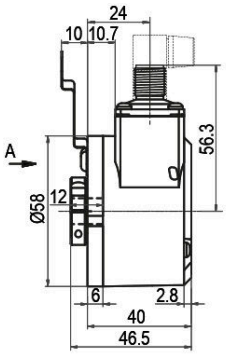
#### Assignments

| | R-C |
|---|---|
| **GND** | WH |
| **(+) Vcc** | BN |
| **SSI CLK+** | GN |
| **SSI CLK-** | YE |
| **SSI DATA+** | GY |
| **SSI DATA-** | PK |
| **PRESET** | BU |
| **DIR** | RD |
| **Shield** | housing |

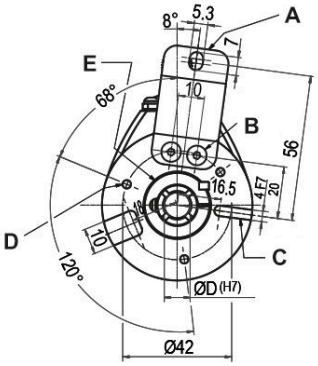
# Caractéristiques techniques

## Encoder EM-M 058 BB SSI

### Connector, M12x1, M12R08S, radial, 8-pin




All dimensions in mm



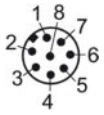

CC8 → M12R08S

**A** Spring plate as torque support
**B** 2x M4x0.7-6H, 6 deep
**D** Groove for cylinder pin as torque support DIN 7-D4mm
**C** 3x M4x0.7-6H, 6 deep
**E** Clamping ring

#### Description

| | |
|---|---|
| **M12R08S** | radial, 8-pin, shield connected to encoder housing |

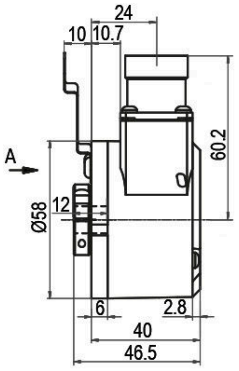
#### Assignments

| | M12R08S |
|---|---|
| |  |
| **GND** | 1 |
| **(+) Vcc** | 2 |
| **SSI CLK+** | 3 |
| **SSI CLK-** | 4 |
| **SSI DATA+** | 5 |
| **SSI DATA-** | 6 |
| **PRESET** | 7 |
| **DIR** | 8 |
| **Shield** | housing |

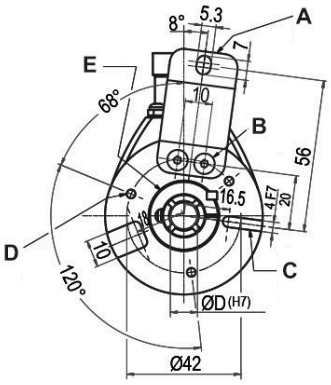
# Caractéristiques techniques

## Encoder EM-M 058 BB SSI

### Connector, M23, M23R12, radial, 12-pin




All dimensions in mm




C5 → M23R12

**A** Spring plate as torque support
**B** 2x M4x0.7-6H, 6 deep
**D** Groove for cylinder pin as torque support DIN 7-D4mm
**C** 3x M4x0.7-6H, 6 deep
**E** Clamping ring

#### Description

| | |
|---|---|
| **M23R12** | radial, 12-pin, shield connected to encoder housing |

#### Assignments

| | M23R12 |
|---|---|
| |  |
| **GND** | 12 |
| **(+) Vcc** | 11 |
| **SSI CLK+** | 2 |
| **SSI CLK-** | 1 |
| **SSI DATA+** | 3 |
| **SSI DATA-** | 4 |
| **PRESET** | 9 |
| **DIR** | 8 |
| **Shield** | housing |

# Caractéristiques techniques

## Encoder EM-M 058 BB SSI

### Options

| Low-friction bearings | Order key |
|---|---|
| The encoder EM-M 058 BB SSI is also available as a particularly smooth- running low-friction encoder. The starting torque is thereby changed to approx. ≤ 0.6 Ncm [0.85 in-ozf] at ambient temperature and the protection class at the shaft input to IP50. | LB |

# Caractéristiques techniques

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## Encoder EM-M 058 BB SSI

| Example Order No. | Type | Your encoder |
|---|---|---|
| EM50 058 BB | EM-M 058 BB | EM50 058 BB |

| | Shaft | Order key |
|---|---|---|
| 06 | Ø 6 mm [Ø 0.236"] with adapter sleeve | 06 |
| | Ø 6.35 mm [Ø 1/4"] Order No: 2Z with adapter sleeve | 2Z |
| | Ø 7 mm [Ø 0.276"] with adapter sleeve | 07 |
| | Ø 8 mm [Ø 0.315"] with adapter sleeve | 08 |
| | Ø 9.525 mm [Ø 3/8"] Order No: 4Z with adapter sleeve | 4Z |
| | Ø 10 mm [Ø 0.394"] with adapter sleeve | 10 |
| | Ø 12 mm [Ø 0.472"] | 12 |
| | Ø 12.7 mm [Ø 1/2"] Order No: 3Z with adapter sleeve | 3Z |
| | Ø 14 mm [Ø 0.551"] | 14 |
| | Ø 15 mm [Ø 0.591"] | 15 |

| | Multi-turn Resolution | Order key |
|---|---|---|
| 12 | Multi-turn up to 43 bit (e. G. 12 bit)<br>No Multi-turn = 00 | 12 |

| | Data protocol | Order key |
|---|---|---|
| 06 | SSI binary | 06 |
| | SSI gray 07 | |

| | Power supply | Order key |
|---|---|---|
| 0 | 4.75 V up to 32 V (standard) | 0 |
| | 4.75 V up to 5.5 V | 1 |

| | Galvanic isolation | Order key |
|---|---|---|
| 1 | yes | 1 |

| | Electrical connections | Order key |
|---|---|---|
| | **Cable:** | |
| | radial, shield connected to encoder housing, with 2 m cable | R-C |
| M12R08S | **Connector:** | |
| | sensor-connector, M12x1, 8-pin, radial, shield connected to encoder housing | M12R08S |
| | connector, M23, 12-pin, radial, shield connected to encoder housing | M23R12 |

| | Options | Order key |
|---|---|---|
| | Without option | Empty |
| | Low-friction bearings | LB |

# Code d'article

Désignation d'article : **EABB CCCDDEE FFFFFF GHHJKK LLMNNOPPP RR**

| | |
|---|---|
| **A** | **Type de codeur rotatif**<br>I : Incrémental<br>S : Absolu, mono-tour<br>M : Absolu, multi-tour |
| **BB** | **Série**<br>10 : Entry<br>30 : Basic<br>50 : Extended<br>70 : Advanced |
| **CCC** | **Diamètre de bride**<br>024 : 24 mm<br>036 : 36 mm<br>058 : 58 mm<br>063 : 63 mm<br>067 : 67 mm<br>070 : 70 mm<br>080 : 80 mm<br>100 : 100 mm<br>115 : 115 mm |
| **DD** | **Type de bride**<br>BB : Arbre creux avec alésage Sackloch<br>CC : Bride de serrage (forme compacte)<br>CF : Bride de serrage (aliments et boissons)<br>CH : Bride de serrage (exécution pour charges lourdes)<br>CL : Bride de serrage<br>HI : Arbre creux (isolé)<br>HO : Arbre creux<br>HT : Arbre creux (supports de couple spéciaux)<br>RC : Bride ronde (bride de serrage 36/40, 58 avec arbre de 6 mm)<br>RE : Bride ronde (alésages étendus)<br>RN : Bride ronde<br>SC : Accouplement statorique<br>SF : Bride à vis (bride de serrage 53, 58 Aliments et boissons)<br>SI : Bride synchro (charge sur l'arbre étendue et protection IP)<br>SQ : Bride carrée<br>SR : Bride à vise (bride de serrage 36/40, 58 résistante à la corrosion)<br>SY : Synchro (incrémental), Servo (36), Synchro (58) (absolu)<br>TM : Tacho (115 avec arbre de 1 mm, rétroaction moteur 58)<br>TS : Tacho (arbre de 10 mm) |
| **EE** | **Diamètre arbre/alésage**<br>06 : 6 mm<br>07 : 7 mm<br>08 : 8 mm<br>08 : 8 mm<br>10 : 10 mm<br>11 : 11 mm<br>12 : 12 mm<br>14 : 14 mm<br>15: 15 mm<br>06-72 : Alésage creux/Sackloch (6 ... 72 mm) |
| **FFFFFF** | **Signal/résolution**<br>Axxxxx : A<br>Bxxxxx : AB<br>Nxxxxx : ABN<br>P16384 : programmable<br>xx : Mono-tour, 1 ... 16 bit<br>xx : Multi-tour, 0 ... 43 bit (00 pour mono-tour) |
| **G** | **Isolation galvanique (absolu uniquement)**<br>0 : sans<br>1 : avec |
| **HH** | **Alimentation en tension (absolu uniquement)**<br>0 : 10 ... 32 V CC/avec isolation galvanique<br>1 : 4,75 ... 5,5 V CC<br>2 : 18 ... 30 V CC |
| **J** | **Principe de fonctionnement**<br>M : magnétique<br>O : Optique<br>P : optiquement interpolé |

# Code d'article

| | |
|---|---|
| **KK** | **Interface**<br>01 : RS485<br>06 : SSI binaire<br>07 : SSI Gray<br>08: Ethernet universel<br>35 : CANopen<br>38 : EtherCAT<br>42 : IO-Link<br>48 : PROFINET<br>58 : EtherNET/IP<br>68 : CANopen lift<br>78 : CAN SAE J1939 |
| **LL** | **Raccordement électrique**<br>M08 : Connecteur rond M8<br>M12 : Connecteur rond M12<br>M16 : Connecteur rond M16<br>M23 : Connecteur rond M23<br>M12BC : Connecteur boîtier réseau |
| **M** | **Sortie de câble**<br>A : Axial<br>R : Radial<br>T : Tangentiel |
| **NN** | **Nombre de pôles**<br>xx : Nombre de pôles |
| **O** | **Connexion blindage (câble 2 m) (en option)**<br>C : raccordé<br>N : non raccordé |
| **PPP** | **Longueur de câble**<br>xxx : Longueur de câble (en dm) |

**Remarque**

↳ Vous trouverez une liste de tous les types d'appareil disponibles sur le site Internet de Leuze à l'adresse www.leuze.com.

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