# Hoja técnica

# Información sobre la serie de encoders

Código: 91000250

EM-M 036 RN IO




La figura puede variar

**Contenido**

- Datos técnicos
- Código de producto

| | |
|---|---|
| **Serie** | EM-M 036 RN |
| **Principio básico** | absoluto |
| **Principio de funcionamiento** | magnético |
| **Diámetro de la brida** | Ø 36 mm |
| **Tipo de brida** | Redondo |
| **Eje macizo/Eje hueco** | Eje macizo |
| **Diámetro del eje** | Ø 6 mm |
| **Tensión de alimentación** | 18 ... 30 V CC |
| **Conmutación de salida** | IB5 |
| | IC56 |
| **Número de impulsos** | 1 ... 16 Bit / 0 ... 43 Bit |


Derechos a modificación técnica reservados

# Datos técnicos

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## Encoder EM-M 036 RN IO

### Mechanical Data

| | |
|---|---|
| Flange | round flange |
| Flange material | aluminum |
| Housing material | stainless steel |
| Flange diameter | Ø 36 mm [Ø 1.417"] |

### Shaft(s)

| | |
|---|---|
| Shaft material | stainless steel |
| Starting torque | approx. 0.3 Ncm [0.425 in-ozf]<br>at ambient temperature |

| | |
|---|---|
| **Shaft** | Ø 6 mm [Ø 0.236"] |
| Shaft length | L: 12 mm [0.472"] |
| 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 | 12000 rpm |

### Machinery Directive: basic data safety integrity level

| | |
|---|---|
| $MTTF_d$ | 1300 a |
| Mission time (TM) | 20 a |
| Nominale service life (L10h) | 1 x 10'11 revs. at 20 % rated shaft load and 12000 rpm |
| Diagnostic coverage (DC) | 0 % |

### Electrical Data

| | |
|---|---|
| Power supply/Current consumption | 18 VDC up to 30 VDC: typ. 30 mA |
| Power consumption | max. 0.6 W |
| Operating principle | magnetic |

### Sensor data

| | |
|---|---|
| Single-turn technology | innovative hall sensor technology |
| Single-turn resolution | 65,536 steps/360° (16 bit) |
| Single-turn accuracy | ± 0.0878° (≤ 12 bit) |
| Single-turn repeat accuracy | ± 0.0878° (≤ 12 bit) |
| Internal cycle time | 250 µs |
| Multi-turn technology | Wiegand wire technology no battery and no gear. |
| Multi-turn resolution | up to 32 bit with high precision value up to 43 bit. |

### Environmental data

| | |
|---|---|
| ESD (DIN EN 61000-4-2): | 4 kV |
| Burst (DIN EN 61000-4-4): | 2 kV |
| Includes EMC: | DIN EN 61000-6-2<br>DIN EN 61326-2-3<br>DIN EN 61131-9 |
| 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: | DIN EN 61010-1 (VDE 0411-1) /<br>IEC 61010-1 / UL 61010-1 / CSA C22.0 No. 61010-1-12 |
| Turn on time: | <1 s |

### Duty information

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

### Interface

| | |
|---|---|
| Interface: | IO-Link Version: V1.1.4 |
| Protocol: | • 2.8 Adjustable Switching Sensor, multi channel<br>• 4.2.1 Measuring and Switching Sensor, high resolution, 1 channel<br>• 4.2.2 Measuring and Switching Sensor, high resolution, 2 channel |
| Baud rate: | COM 3<br>230.4 kBit/s |
| Advice: | The standard settings and customer-specific adjustments in the parameterisation can be set using ISDUs, e.g. scaling, direction of rotation, etc. |

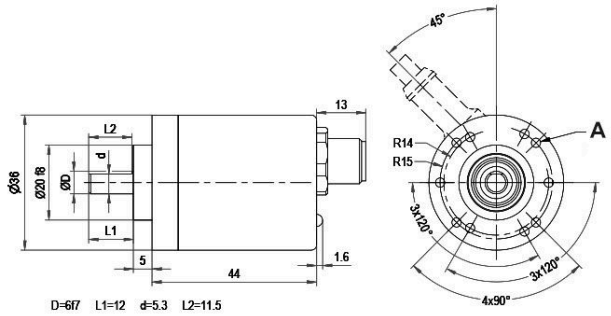
### General Data

| | |
|---|---|
| Weight | approx. 112 g [3.951 oz] |
| Connections | connector outlet |
| Protection rating<br>(EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65 |
| 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] |

# Datos técnicos

## Encoder EM-M 036 RN IO

### Connector, M12x1 M12A05, axial, 5-pin




**A** 10x M3x0.5-6H, 5 deep

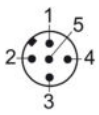
All dimensions in mm

IB5 → M12A05

### Description

| | |
|---|---|
| **M12A05** | axial, 5-pin, shield connected to encoder housing |

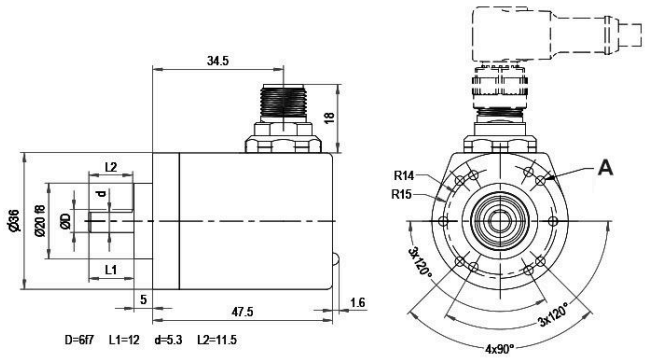
### Assignments

| | M12A05 |
|---|---|
| |  |
| **(+) Vcc** | 1 |
| **GND** | 3 |
| **CANHigh** | 4 |
| **CANLow** | 2 |
| **CANGND shield** | 5 |

# Datos técnicos

## Encoder EM-M 036 RN IO

### Connector, M12x1 M12R05, radial, 5-pin




**A** 10x M3x0.5-6H, 5 deep

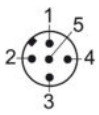
All dimensions in mm

IC5 → M12R05

### Description

| | |
|---|---|
| **M12R05** | radial, 5-pin, shield connected to encoder housing |

### Assignments

| | M12R05 |
|---|---|
| |  |
| **(+) Vcc** | 1 |
| **GND** | 3 |
| **CANHigh** | 4 |
| **CANLow** | 2 |
| **CANGND shield** | 5 |

# Datos técnicos

## Encoder EM-M 036 RN IO

### Options

| Low-friction bearings | Order key |
|---|---|
| The encoder EM-M 036 RN IO is also available as a particularly smooth- running low-friction encoder. The starting torque is thereby changed to ≤ 0.25 Ncm [0.354 in-ozf] and the protection class at the shaft input to IP50. | LB |

# Datos técnicos

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## Encoder EM-M 036 RN IO

| Example Order No. | Type | Your encoder |
|---|---|---|
| EM50 036 RN | EM-M 036 RN | EM50 036 RN |

| | Shaft | Order key |
|---|---|---|
| 06 | Ø 6 mm [Ø 0.236"] | 06 |

| | Single-turn Resolution | Order key |
|---|---|---|
| 16 | Single-turn resolution 1 bit up to 16 bit: (e. G. 6 bit) | 16 |

| | Multi-turn Resolution | Order key |
|---|---|---|
| 43 | Multi-turn resolution: (examples)<br>6 bit = 6<br>43 bit = 43 | 16 |

| | Data protocol | Order key |
|---|---|---|
| 42 | IO-Link | 42 |

| | Power supply | Order key |
|---|---|---|
| 2 | 18 V up to 30 V (standard) | 2 |

| | Galvanic isolation | Order key |
|---|---|---|
| 0 | no | 0 |

| | Electrical connections | Order key |
|---|---|---|
| | **Connector:** | |
| M12A05 | sensor-connector, M12x1, 5-pin, axial, shield connected to encoder housing | M12A05 |
| | sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing | M12R05 |

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

# Código de producto

Denominación del artículo: **EABB CCCDDEE FFFFFF GHHJKK LLMNNOPPP RR**

| | |
|---|---|
| **A** | **Tipo de codificador rotatorio**<br>I: Incremental<br>S: Absoluto, Singleturn<br>M: Absoluto, Multiturn |
| **BB** | **Serie**<br>10: Entry<br>30: Basic<br>50: Extended<br>70: Advanced |
| **CCC** | **Diámetro de la brida**<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** | **Tipo de brida**<br>BB: Eje hueco con orificio ciego<br>CC: Brida de sujeción (diseño compacto)<br>CF: Brida de sujeción (alimentos y bebidas)<br>CH: Brida de sujeción (ejecución para carga pesada)<br>CL: Brida de sujeción<br>HI: Eje hueco (aislado)<br>HO: Eje hueco<br>HT: Eje hueco (brazo de torsión especial)<br>RC: Brida redonda (36/40 brida de sujeción, 58 con eje de 6 mm)<br>RE: Brida redonda (orificios ampliados)<br>RN: Brida redonda<br>SC: Acoplamiento de estátor<br>SF: Brida roscada (53 brida de sujeción, 58 alimentos y bebidas)<br>SI: Brida servo (carga del eje y protección IP ampliadas)<br>SQ: Brida cuadrada<br>SR: Brida roscada (36/40 brida de sujeción, 58 resistente a la corrosión)<br>SY: Synchro (incremental), Servo (36), Synchro (58) (absoluto)<br>TM: Tacómetro (115 con eje de 1 mm, 58 retroalimentación del motor)<br>TS: Tacómetro (eje de 10 mm) |
| **EE** | **Diámetro del eje/orificio**<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: Orificio hueco/ciego (6 ... 72 mm) |
| **FFFFFF** | **Señal/Resolución**<br>Axxxxx: A<br>Bxxxxx: AB<br>Nxxxxx: ABN<br>P16384: Programable<br>xx: Singleturn, 1 ... 16 bits<br>xx: Multiturn, 0 ... 43 bits (00 con Singleturn) |
| **G** | **Separación galvánica (solo absoluto)**<br>0: sin<br>1: con |
| **HH** | **Alimentación de tensión (solo absoluto)**<br>0: 10 ... 32 V CC/con separación galvánica<br>1: 4,75 ... 5,5 V CC<br>2: 18 ... 30 V CC |
| **J** | **Principio de funcionamiento**<br>M: magnético<br>O: óptico<br>P: interpolado ópticamente |

# Código de producto

| | |
|---|---|
| **KK** | **Interfaz**<br>01: RS485<br>06: SSI binario<br>07: SSI Gray<br>08: Ethernet universal<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** | **Conexión eléctrica**<br>M08: Conector redondo M8<br>M12: Conector redondo M12<br>M16: Conector redondo M16<br>M23: Conector redondo M23<br>M12BC: Conector de cubierta de bus |
| **M** | **Salida de cable**<br>A: Axial<br>R: Radial<br>T: Tangencial |
| **NN** | **Número de polos**<br>xx: Número de polos |
| **O** | **Conexión de blindaje (cable de 2 m) (opcional)**<br>C: conectado<br>N: no conectado |
| **PPP** | **Longitud de cable**<br>xxx: Longitud de cable (en dm) |

**Nota**

↳ Encontrará una lista con todos los tipos de equipo disponibles en el sitio web de Leuze: www.leuze.com.

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