# 기술 데이터 시트
# 엔코더 시리즈 정보
## 품목 번호: 91000240
## EM-M 036 SY IO




그림과 차이가 날 수 있습니다

**내용**

- 기술 데이터
- 제품 키워드

| | |
|---|---|
| **시리즈** | EM-M 036 SY |
| **기본 원리** | 절대형 |
| **작동 원리** | 자기식 |
| **플랜지 직경** | Ø 36mm |
| **플랜지 유형** | 서보 플랜지 |
| **실축/중공축** | 실축 |
| **축 직경** | Ø 6mm |
| | Ø 8mm |
| **공급전압** | 18 ~ 30V DC |
| **출력 회로** | M12A05 |
| | M12R05 |
| **펄스 수** | 1 ... 16 Bit / 0 ... 43 Bit |

# 기술 데이터

Leuze

## Encoder EM-M 036 SY IO

### Mechanical Data

| | |
|---|---|
| Flange | servo flange |
| Flange material | aluminum |
| Housing material | stainless steel |
| Flange diameter | Ø 36 mm [Ø 1.417"] |
| Cam mounting | pitch 48 mm [1.89 inches] |

### 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: 11.5 mm [0.453"] |
| 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 |
| Shaft length | L: 11.5 mm [0.453"] |
| 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"] |
| Shaft length | L: 18 mm [0.709"] |
| Max. Permissible shaft loading radial | 50 N [5.098 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

### Bearings

| | |
|---|---|
| Bearings type | 2 precision ball bearings |
| Nominale service life | 1.4 x 10'8 revs. at 100 % rated shaft load<br>2 x 10'9 revs. at 40 % rated shaft load<br>1.7 x 10'10 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) | 1.7 x 10'10 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. |

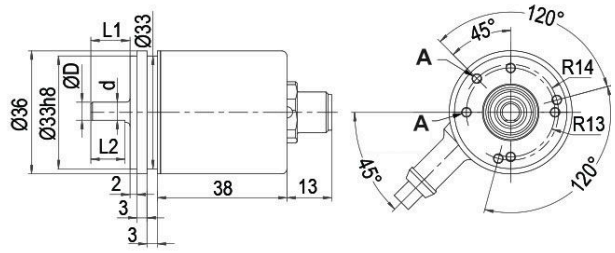
### General Data

| | |
|---|---|
| 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] |

# 기술 데이터

## Encoder EM-M 036 SY IO

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




| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

All dimensions in mm

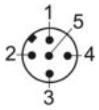
IB5 → M12A05

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

#### Description

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

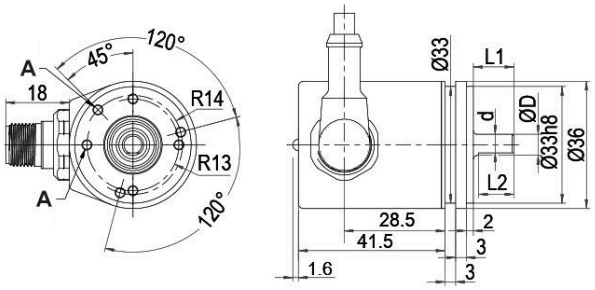
#### Assignments

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

# 기술 데이터

## Encoder EM-M 036 SY IO

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




| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

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

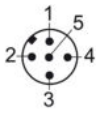
All dimensions in mm

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 |

# 기술 데이터

## Encoder EM-M 036 SY IO

### Options

| Low-friction bearings | Order key |
|---|---|
| The encoder EM-M 036 SY 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 |

# 기술 데이터

## Encoder EM-M 036 SY IO

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

| | Shaft | Order key |
|---|---|---|
| 06 | Ø 6 mm [Ø 0.236"] | 06 |
| | Ø 6.35 mm [Ø 1/4"] Order No: 2Z | 2Z |
| | Ø 8 mm [Ø 0.315"] | 08 |

| | 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 |

# 제품 키워드

제품 명칭: **EABB CCCDDEE FFFFFF GHHJKK LLMNNOPPP RR**

| | |
|---|---|
| **A** | **회전 센서 유형**<br>I: 증분형<br>S: 절대형, 싱글턴<br>M: 절대형, 멀티턴 |
| **BB** | **시리즈**<br>10: Entry<br>30: 기본<br>50: 확장형<br>70: Advanced |
| **CCC** | **플랜지 직경**<br>024: 24mm<br>036: 36mm<br>058: 58mm<br>063: 63mm<br>067: 67mm<br>070: 70mm<br>080: 80mm<br>100: 100 mm<br>115: 115 mm |
| **DD** | **플랜지 유형**<br>BB: 막힌 구멍 보어가 있는 중공축<br>CC: 클램핑 플랜지(컴팩트형)<br>CF: 클램핑 플랜지(식품 및 음료용)<br>CH: 클램핑 플랜지(중하중형)<br>CL: 클램핑 플랜지<br>HI: 중공축(절연)<br>HO: 중공축<br>HT: 중공축(특수 토크 지지대)<br>RC: 원형 플랜지(36/40 클램핑 플랜지, 58은 6 mm 축 적용)<br>RE: 원형 플랜지(확장 홀)<br>RN: 원형 플랜지<br>SC: 스테이터 커플링<br>SF: 나사식 플랜지(53 클램핑 플랜지, 58 식품 및 음료용)<br>SI: 서보 플랜지(증가된 축 하중 및 IP 보호)<br>SQ: 스퀘어 플랜지<br>SR: 나사식 플랜지(36/40 클램핑 플랜지, 58 내식형)<br>SY: 싱크로(증분형), 서보(36), 싱크로(58)(절대형)<br>TM: 타코(115, 1mm 축, 58 모터 피드백)<br>TS: 타코(10mm 축) |
| **EE** | **축/보어 직경**<br>06: 6mm<br>07: 7mm<br>08: 8mm<br>08: 8mm<br>10: 10mm<br>11: 11mm<br>12: 12mm<br>14: 14mm<br>15: 15 mm<br>06-72: 중공축/막힌 구멍 보어(6 ~ 72mm) |
| **FFFFFF** | **신호/분해능**<br>Axxxxx: A<br>Bxxxxx: AB<br>Nxxxxx: ABN<br>P16384: 프로그래밍 가능<br>xx: 싱글턴, 1 ~ 16비트<br>xx: 멀티턴, 0 ~ 43비트(싱글턴의 경우 00) |
| **G** | **갈바닉 절연(절대형에 한함)**<br>0: 제외<br>1: 있음 |
| **HH** | **전원 공급(절대형에 한함)**<br>0: 10 ~ 32V DC/갈바닉 절연<br>1: 4.75 ~ 5.5V DC<br>2: 18 ~ 30V DC |
| **J** | **작동 원리**<br>M: 자기식<br>O: 광학 방식<br>P: 광학 보간 |

# 제품 키워드

| | |
|---|---|
| **KK** | **인터페이스**<br>01: RS485<br>06: SSI 2진<br>07: SSI Gray<br>08: 범용 이더넷<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** | **전기 연결**<br>M08: 원형 커넥터 M8<br>M12: 원형 커넥터 M12<br>M16: 원형 커넥터 M16<br>M23: 원형 커넥터 M23<br>M12BC: 버스 커넥터 |
| **M** | **케이블 출구**<br>A: 액시얼<br>R: 레이디얼<br>T: 접선형 |
| **NN** | **핀 개수**<br>xx: 핀 개수 |
| **O** | **차폐 연결(2m 케이블)(옵션)**<br>C: 연결됨<br>N: 연결되지 않음 |
| **PPP** | **케이블 길이**<br>xxx: 케이블 길이(단위: dm) |

**참고**

↳ 제공되는 모든 장치 유형 목록은 로이체의 웹 사이트 www.leuze.com을 참조하십시오.

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