

The SICK logo is displayed in a large, bold, blue sans-serif font, centered within a white rectangular box. The background of the entire page is a light blue gradient with a subtle pattern of concentric white circles.

MWS120-ZZN1NF00S01

MWS120

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.



Ordering information

| Type | part no. |
|--------------------|----------|
| MWS120-ZZN1NF00S01 | 1121018 |

Illustration may differ

Included in delivery: AFS60A-S4NB262144 (1), BEF-MR-010020 (1), BEF-MWS120-ARM (1)

Other models and accessories → www.sick.com/MWS120



Detailed technical data

Features

| | |
|----------------------------------|---|
| Special device | ✓ |
| Specialty | Premounted 1059050 AFS60A-S4NB262144 absolute encoder and 5312988 BEF-MR-010020 measuring wheel |
| Standard reference device | MWS120-12N1NF12x00, 1112907 |

Safety-related parameters

| | |
|--|--|
| MTTF_D (mean time to dangerous failure) | 80 years (EN ISO 13849-1) ^{1) 2)} |
|--|--|

¹⁾ This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

²⁾ Value refers to the mounted encoder.

Performance

| | |
|---|---------------------------------------|
| Number of steps per revolution (max. resolution) | 262,144 (18 bit) |
| Measuring increment (resolution in mm/pulse) | 0.0008 ¹⁾ ²⁾ |

¹⁾ Calculation example: Circumference of wheel / pulses per revolution = 200 mm / 16384 pulses per revolution = 0,012mm/pulse.

²⁾ Value based on measuring wheel circumference. The measuring wheel circumference depends on manufacturing tolerances, wear and tear, the selected spring tensioning force, and the behavior of the measurement wheel surface at different temperatures and on different measurement surfaces. To obtain the most accurate measurement results, we recommend performing a reference run for positioning tasks so that application-specific measuring wheel characteristics can be taken into account.

Interfaces

| | |
|----------------------------------|----------|
| Communication interface | PROFINET |
| Programmable/configurable | ✓ |

Electronics

| | |
|------------------------------------|--|
| Connection type | Male connector, 1x, M12, 4-pin, axial Female connector, 2x, M12, 4-pin, axial |
| Supply voltage | 10 V DC ... 30 V DC |
| Reverse polarity protection | - |

Mechanics

| | |
|--|--|
| Measuring wheel circumference | 200 mm ¹⁾ |
| Measuring wheel surface | O-ring NBR70 |
| Mounting | Measuring wheel mounted at the front |
| Spring arm mechanism material | |
| Spring element | Stainless steel |
| Measuring wheel core | Aluminum |
| Start up torque | 0.5 Ncm |
| Operating torque | 0.3 Ncm |
| Bearing lifetime | 3.0 x 10 ⁹ revolutions |
| Minimum spring tension force | 4 N ²⁾ ³⁾ |
| Max. permissible working area for the spring (continuous operation) | ± 10 mm |
| Service life of spring element | > 1.5 million cycles |
| Mounting position relative to the measuring object | Preferably from above, from below possible ⁴⁾ |
| Mounted encoder | AFS60 PROFINET, AFS60A-S4NB262144, 1059050 |
| Mounted mechanic | BEF-MWS120-ARM, 2118239 |
| Attached measuring wheel | BEF-MR-010020, 5312988 |

¹⁾ The surface of a measuring wheel is subject to wear. This depends on contact pressure, acceleration behavior in the application, traversing speed, measurement surface, mechanical alignment of the measuring wheel, temperature, and ambient conditions. We recommend you regularly check the condition of the measuring wheel and replace as required.

²⁾ The correct spring tensioning force for the application prevents slippage in the application without damaging the measuring surface.

³⁾ The clamping force can be set in 6 fixed increments of 4 N. 4 N corresponds to one increment.

⁴⁾ When mounted from below, the encoder weight during spring pretensioning must be taken into account.

Ambient data

| | |
|------------------------------------|--|
| EMC | According to EN 61000-6-2 and EN 61000-6-3 ¹⁾ |
| Operating temperature range | -10 °C ... +70 °C ²⁾ |
| Storage temperature range | -40 °C ... +100 °C ²⁾ |

¹⁾ EMC according to the standards quoted is achieved if shielded cables are used.

²⁾ This value reflects the smallest temperature value of the installed products. For more information, please look at the individual data sheets.

Certificates

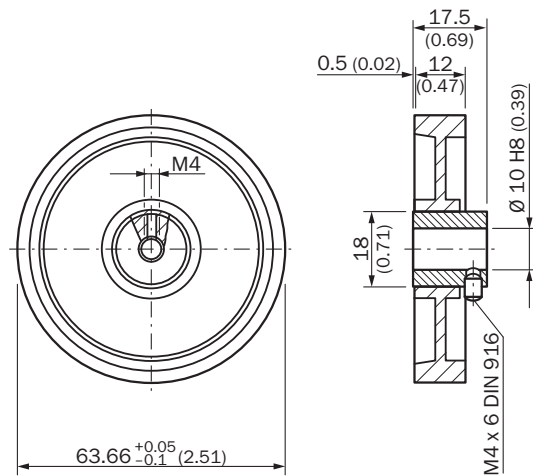
| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |

Classifications

| | |
|---------------------|----------|
| ECLASS 5.0 | 27270501 |
| ECLASS 5.1.4 | 27270501 |
| ECLASS 6.0 | 27270590 |
| ECLASS 6.2 | 27270590 |

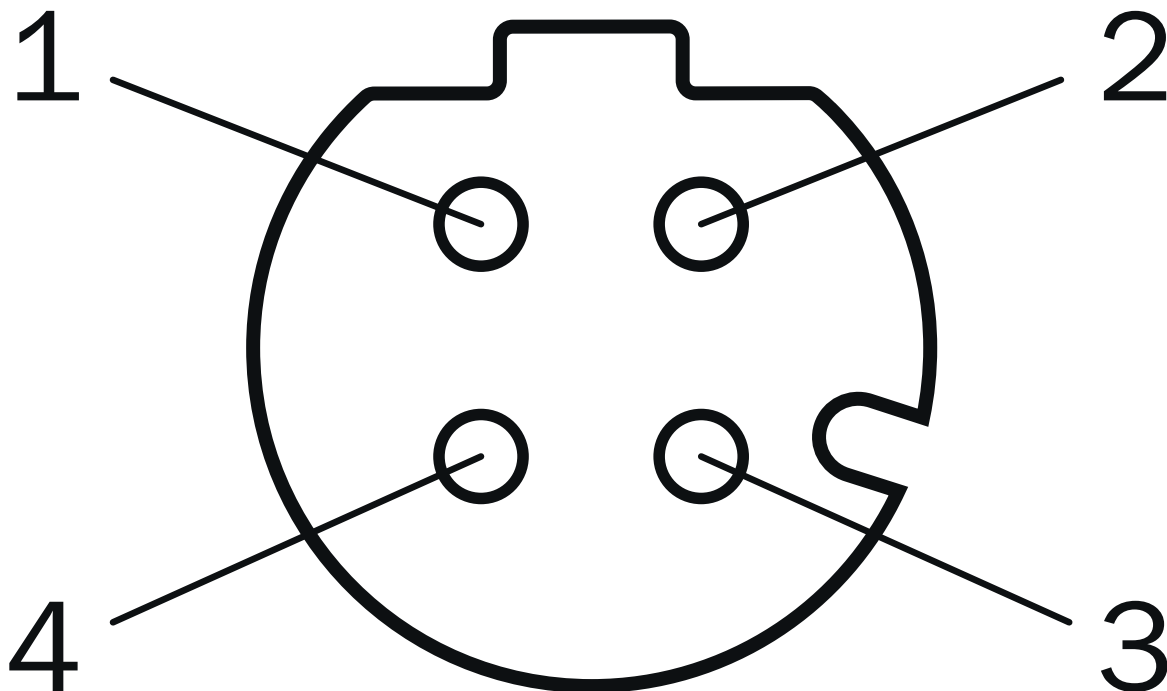
| | |
|-----------------------|----------|
| ECLASS 7.0 | 27270501 |
| ECLASS 8.0 | 27270501 |
| ECLASS 8.1 | 27270501 |
| ECLASS 9.0 | 27270501 |
| ECLASS 10.0 | 27270790 |
| ECLASS 11.0 | 27270707 |
| ECLASS 12.0 | 27270504 |
| ETIM 5.0 | EC001486 |
| ETIM 6.0 | EC001486 |
| ETIM 7.0 | EC001486 |
| ETIM 8.0 | EC001486 |
| UNSPSC 16.0901 | 41112113 |

Dimensional drawing



Dimensions in mm (inch)

Anschlussbelegung Female connector



Port 1, Port 2

| PIN | Wire color | Signal |
|-----|------------|--------|
| 1 | Yellow | T x D+ |
| 2 | White | R x D+ |
| 3 | Orange | T x D- |
| 4 | Blue | R x D- |

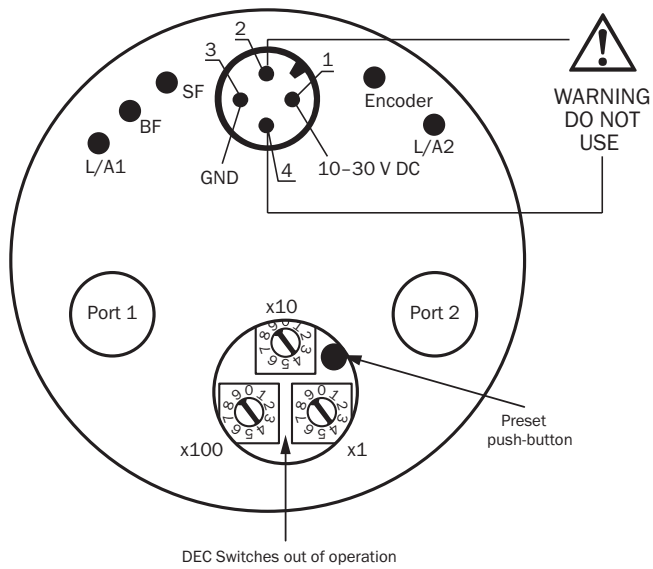
Anschlussbelegung Male connector



Supply voltage

| PIN | Wire color | Signal |
|-----|------------|------------------------------|
| 1 | Brown | U _S 10 V ... 30 V |
| 2 | White | Not assigned |
| 3 | Blue | GND |
| 4 | Black | Not assigned |

Connection diagram



SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com