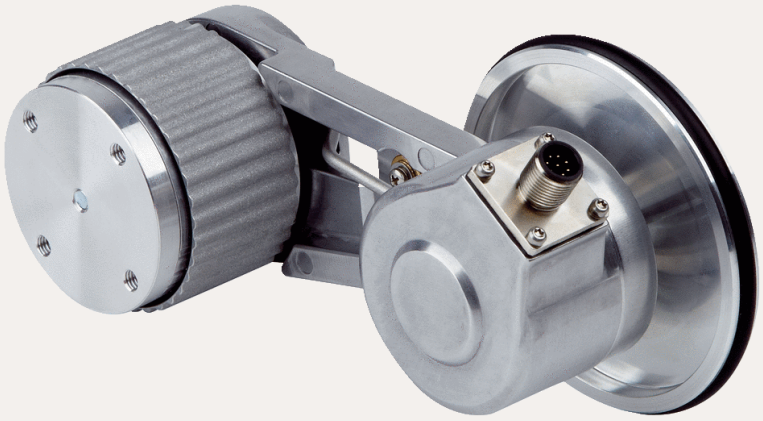
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DATA SHEET

# MWS120-22A17C01000

MWS120
Measuring wheel encoders

SICK Sensor Intelligence



Illustration may differ

## MEASURING WHEEL ENCODERS

# MWS120-22A17C01000

### ORDERING INFORMATION

| Type | part no. |
|---|---|
| MWS120-22A17C01000 | 1147655 |

Further device versions and accessories at www.sick.com/MWS120

## DETAILED TECHNICAL DATA

### SAFETY-RELATED PARAMETERS

| | |
|---|---|
| $MTTF_D$ (mean time to dangerous failure) | 500 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

| | |
|---|---|
| Pulses per revolution | 1,000 |
| Measuring increment (resolution in mm/pulse) | 0.04 [1) 2)] |
| Repeatability | < 0.1 mm [3)] |

[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.

[3)] Value is based on the mechanics. Backlash of the measuring wheel mechanics, is at a minimum. This enables a precise and repeatable measurement results.

### INTERFACES

| | |
|---|---|
| Communication interface | Incremental |
| Communication Interface detail | TTL / HTL |
| Number of signal channels | 6-channel |

### ELECTRONICS

| | |
|---|---|
| Connection type | Male connector, M12, 8-pin, radial |

[1)] Short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

| | |
|---|---|
| Power consumption | ≤ 0.5 W (without load) |
| Supply voltage | 4.5 V ... 30 V |
| Reverse polarity protection | ✓ |
| Short-circuit protection of the outputs | ✓ [1] |

[1] Short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

## MECHANICS

| | |
|---|---|
| Measuring wheel circumference | 300 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 | + 1.2 Ncm (at 20 °C) |
| Operating torque | 1.1 Ncm (at 20 °C) |
| Bearing lifetime | 3.6 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 | DBS60 Core, DBS60E-S4FC01000, 1090474 |
| Mounted mechanic | BEF-MWS120-ARM, 2118239 |
| Attached measuring wheel | BEF-MR010030R, 2049278 |

[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

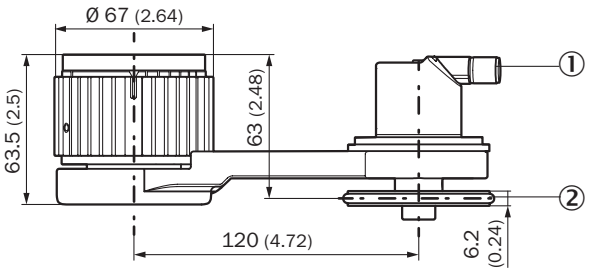
| | |
|---|---|
| EMC | According to EN 61000-6-2 and EN 61000-6-3 |
| Enclosure rating | IP67 (IEC 60529) |
| Operating temperature range | –30 °C ... +80 °C [1] |
| Storage temperature range | –40 °C ... +100 °C [1] |

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

## CERTIFICATES

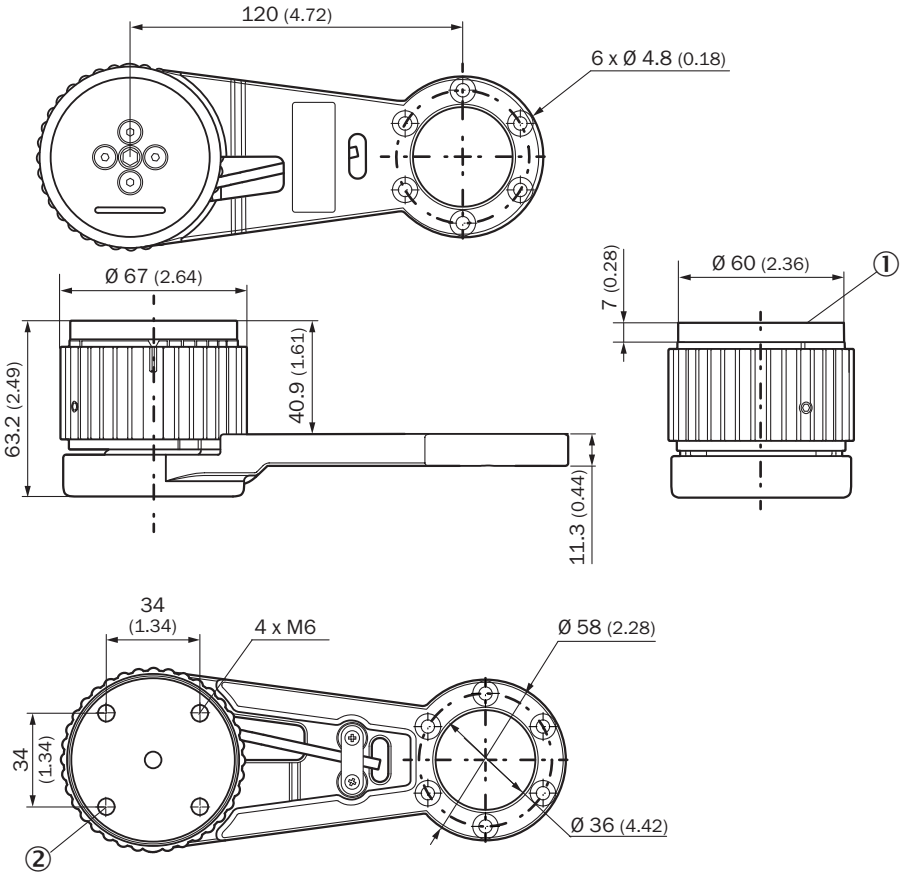
| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |

**DIMENSIONAL DRAWING**



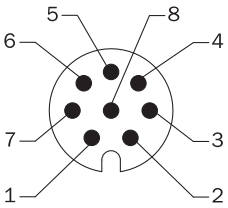

Dimensions in mm (inch)
① Please refer to the dimensional drawings in the respective data sheet for the installed encoder.
② The measuring wheel circumference and surface depend on the installed measuring wheel.

**DIMENSIONAL DRAWING**




Dimensions in mm (inch)
① Adapter plate
② Holes of the adapter plate, maximum thread depth 6 mm

**ANSCHLUSSBELEGUNG**




view of M12 male device connector on cable / housing

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1147655

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# SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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