MWS120-12A11C00100

MWS120

MEASURING WHEEL ENCODERS

SICK
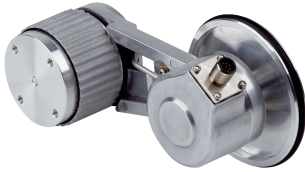Sensor Intelligence.

MWS120-12A11C00100 | MWS120

MEASURING WHEEL ENCODERS

Ordering information

Type	Part no.
MWS120-12A11C00100	1112009

Included in delivery: DBS60E-S4AC00100 (1), BEF-MR010020R (1), BEF-MWS120-ARM (1)

Encoder and measuring wheel are attached to the measuring arm. See individual components for further technical data

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

Illustration may differ

CE

Detailed technical data

Performance

Pulses per revolution	100
Measuring increment (resolution in mm/pulse)	2 [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 / RS-422
Number of signal channels	6-channel

Electrical data

Connection type	Male connector, M12, 8-pin, radial
Supply voltage	4.5 V ... 5.5 V
Reverse polarity protection	✓
Short-circuit protection of the outputs	✓ [1]
MTTFd: mean time to dangerous failure	500 years (EN ISO 13849-1) [2] [3]

[1] Short-circuit opposite to another channel or GND permissible for max. 60 s. No protection signal against U_S.

[2] 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.

[3] Value refers to the mounted encoder.

Mechanical data

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, spring arm	Aluminum
Start up torque	+ 1.2 Ncm (at 20 °C)
Operating torque	1.1 Ncm (at 20 °C)
Bearing lifetime	3.6×10^9 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-S4AC00100, 1091257
Mounted mechanic	BEF-MWS120-ARM, 2118239
Attached measuring wheel	BEF-MR010020R, 2055224

[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 right spring tension force for the application shall keep the slippage at a minimum in the application working conditions and measuring surface, 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
Operating temperature range	–20 °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.

Classifications

eCl@ss 5.0	27270501
eCl@ss 5.1.4	27270501
eCl@ss 6.0	27270590
eCl@ss 6.2	27270590
eCl@ss 7.0	27270501
eCl@ss 8.0	27270501
eCl@ss 8.1	27270501
eCl@ss 9.0	27270501
eCl@ss 10.0	27270790
eCl@ss 11.0	27270707
eCl@ss 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))
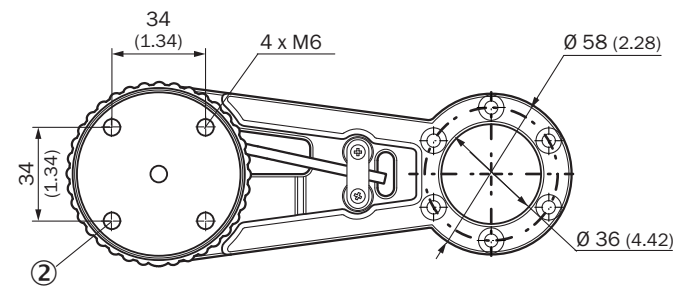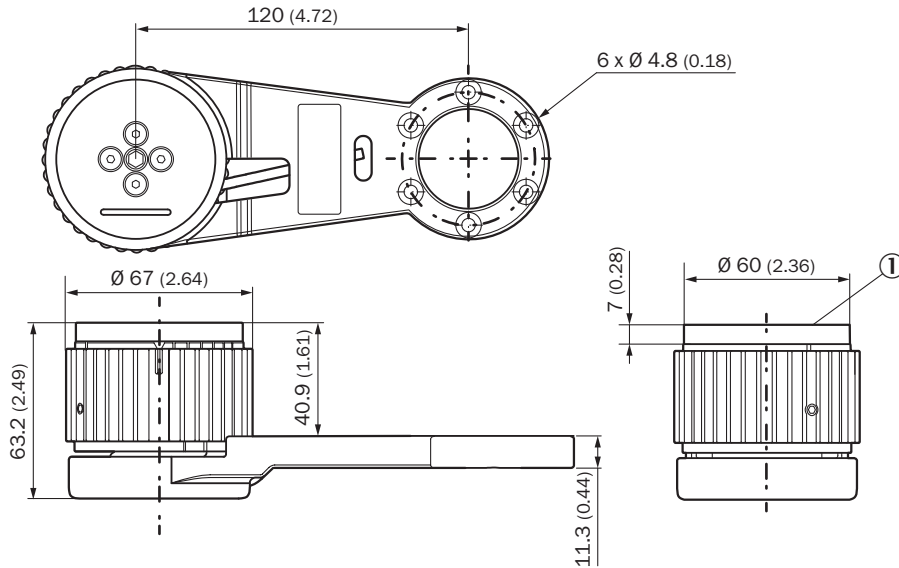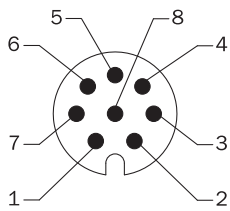

① Adapter plate
② Holes of the adapter plate, maximum thread depth 6 mm
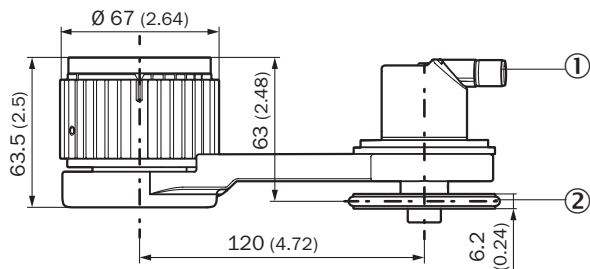
① Please refer to the dimensional drawings in the respective data sheet for the installed encoder.
② The measuring wheel circumference and surface depend on the installed measuring wheel.

17 (0.67)

8 (0.31)

M5

Ø 63.66 (2.51)

Ø XH7

4 (0.16)
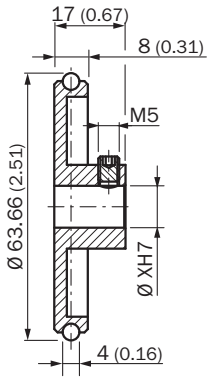
PIN assignment

View of M12 male device connector on cable / housing

Recommended accessories

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

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for MWS120 measuring wheel system and SPEETEC 1D laser surface motion sensors	BEF-WF-MWS-NCV	2113284
Other mounting accessories			
	Aluminium measuring wheel with O-ring (NBR70) for 10 mm solid shaft, circumference 200 mm	BEF-MR010020R	2055224
	Aluminium measuring wheel with O-ring (NBR70) for 10 mm solid shaft, circumference 300 mm	BEF-MR010030R	2049278
	Measuring wheel with O-ring (NBR70) for 10 mm solid shaft, circumference 500 mm	BEF-MR010050R	2055227
	Aluminum measuring wheel with cross-knurled surface for 10 mm solid shaft, circumference 200 mm	BEF-MR10200AK	4084737
	Aluminum measuring wheel with smooth polyurethane surface for 10 mm solid shaft, circumference 200 mm	BEF-MR10200AP	4084738
	Aluminum measuring wheel with ridged polyurethane surface for 10 mm solid shaft, circumference 200 mm	BEF-MR10200APG	4084740

	Brief description	Type	Part no.
	Aluminum measuring wheel with studded polyurethane surface for 10 mm solid shaft, circumference 200 mm	BEF-MR10200APN	4084739
	Aluminum measuring wheel with cross-knurled surface for 10 mm solid shaft, circumference 300 mm	BEF-MR10300AK	2115703
	Aluminum measuring wheel with smooth polyurethane surface for 10 mm solid shaft, circumference 300 mm	BEF-MR10300AP	2118512
	Aluminum measuring wheel with ridged polyurethane surface for 10 mm solid shaft, circumference 300 mm	BEF-MR10300APG	2118496
	Aluminum measuring wheel with studded polyurethane surface for 10 mm solid shaft, circumference 300 mm	BEF-MR10300APN	2118494
	Aluminum measuring wheel with cross-knurled surface for 10 mm solid shaft, circumference 500 mm	BEF-MR10500AK	4084733
	Aluminum measuring wheel with smooth polyurethane surface for 10 mm solid shaft, circumference 500 mm	BEF-MR10500AP	4084734
	Aluminum measuring wheel with ridged polyurethane surface for 10 mm solid shaft, circumference 500 mm	BEF-MR10500APG	4084736
	Aluminum measuring wheel with studded polyurethane surface for 10 mm solid shaft, circumference 500 mm	BEF-MR10500APN	4084735
	Spring arm for linear measurement with contact, spring contact pressure manually adjustable without tools in 6 increments of 4 N from 0 ... 24 N, can be combined with separately available encoders and measuring wheels., MWS120 spring arm (part number: 2118239), 3 pcs. M4 x 16 cylinder head screws for adapter or encoder mounting	BEF-MWS120-ARM	2118239

Plug connectors and cables

	Brief description	Type	Part no.
	Head A: cable Head B: Flying leads Cable: SSI, Incremental, HIPERFACE®, PUR, halogen-free, shielded	LTG-2308-MWENC	6027529
	Head A: cable Head B: Flying leads Cable: SSI, Incremental, PUR, shielded	LTG-2411-MW	6027530
	Head A: cable Head B: Flying leads Cable: SSI, Incremental, PUR, halogen-free, shielded	LTG-2512-MW	6027531
	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, Incremental, PUR, halogen-free, shielded	LTG-2612-MW	6028516
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868

	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869
	Head A: female connector, M12, 8-pin, straight, A-coded Cable: Incremental, SSI, shielded	DOS-1208-GA01	6045001
	Head A: male connector, M12, 8-pin, straight, A-coded Cable: Incremental, shielded	STE-1208-GA01	6044892

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**

SICK AG | Waldkirch | Germany | www.sick.com

SICK
Sensor Intelligence.