Product data sheet

MWS120-22AZ5ZS0002

MWS120

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
MWS120-22AZ5ZS0002	1129362

Included in delivery: 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

Detailed technical data

Features

Special device	✓
Specialty	Pre-assembled DBS60E-S4EZ0S200 (1129360) on BEF-MWS120-ARM (2118239) 2 x M6 x 20 mm Allen screws (5309008) 2 x washers A 6.4 (5342382) 2 x UH sliding nuts, M6 ST (5305615) 1 x cable, with M12 male connector, M12, 5-pin, 10 m (6032886) 1 x MWS120 mounting bracket (2113284)
Standard reference device	MWS120-22A17K01000, 1114156
Items supplied	2 x M6 x 20 mm Hex Socket Screw (5309008) 2 x Washer A 6.4 (5342382) 2 x UH-SLOT NUT M6 ST (5305615) 1 x Cable, with male connector, M12, 5-pin, 10 m cable (6032886) 1 x MWS120 Mounting bracket (2113284)

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	1,500
Measuring increment (resolution in mm/pulse)	0.05 [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

Electrical data

Connection type	Male connector, M12, 5-pin, (Cable in package included) [1]
Power consumption	≤ 0.5 W (without load)
Supply voltage	4.5 V ... 30 V
Reverse polarity protection	✓
Short-circuit protection of the outputs	✓ [2]

[1] The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.
[2] Short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

Mechanical data

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, spring arm	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-S4EZ0S200, 1129360
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 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	–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.

Classifications

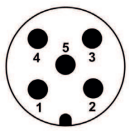
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590

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

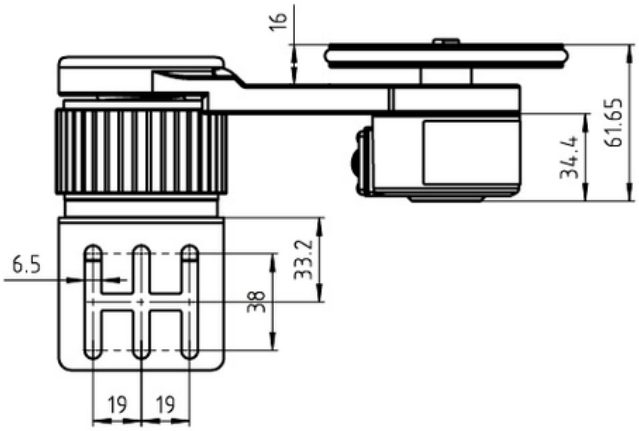
Dimensional drawing (Dimensions in mm (inch))

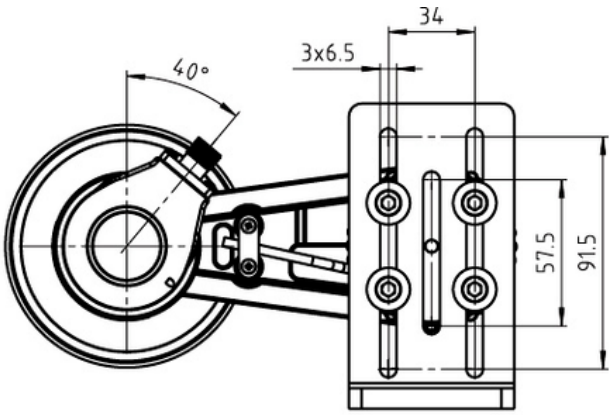
PIN	Si l	Explanation
1	Us	Supply voltage [1]
2	B	Signal line
3	GND	Ground connection of the encoder
4	A	Signal line
5	Z	Signal line for zero set

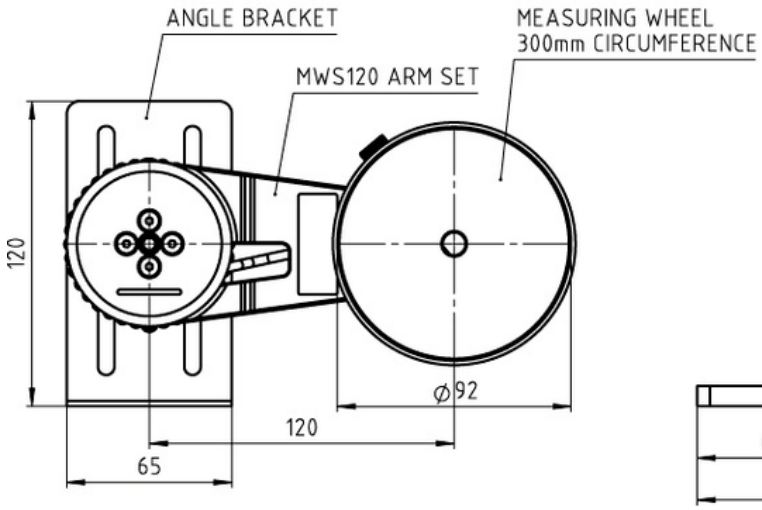
[1] Potential free to housing

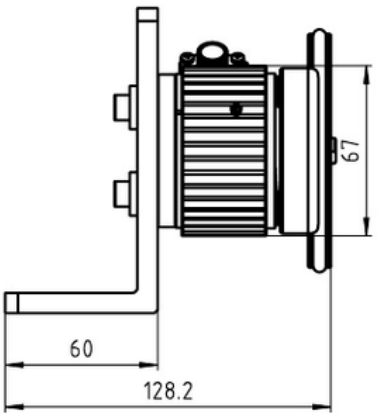


View to the connector fitted to the encoder body


16
61.65
34.4
6.5
33.2
38
19
19


34
3x6.5
40°
57.5
91.5


ANGLE BRACKET
MWS120 ARM SET
MEASURING WHEEL
300mm CIRCUMFERENCE
120
Ø92
120
65


67
60
128.2

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