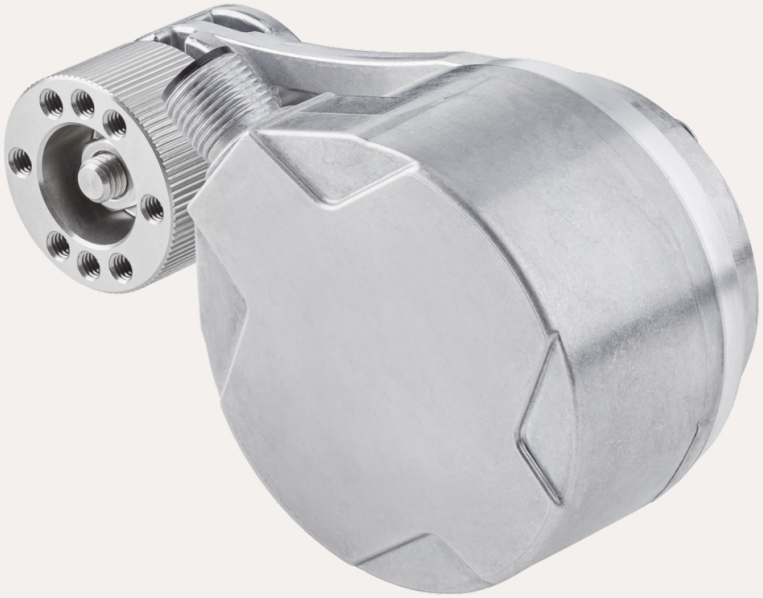
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DATA SHEET

MWS075-00B352C110000

MWS075
Measuring wheel encoders

SICK Sensor Intelligence



Illustration may differ

MEASURING WHEEL ENCODERS

MWS075-00B352C110000

ORDERING INFORMATION

Type	part no.
MWS075-00B352C110000	1146359

Further device versions and accessories at www.sick.com/MWS075

DETAILED TECHNICAL DATA

PERFORMANCE

Pulses per revolution	10,000
Measuring increment (resolution in mm/pulse)	[1]
Repeatability	< 0.1 mm [2]

[1] 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.

[2] 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
Programmable/configurable	✓

ELECTRONICS

Connection type	Male connector, M12, 8-pin, radial
Supply voltage	4.5 V ... 32 V
Reverse polarity protection	✓
Short-circuit protection of the outputs	✓ [1] [2]

[1] Programming TTL with ≥ 5.5 V: short-circuit opposite to another channel or GND permissable for maximum 30 s.

[2] Programming HTL or TTL with < 5.5 V: short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

MECHANICS

Start up torque	0.5 Ncm
Operating torque	0.3 Ncm
Operating speed	≤ 9,000 min^{-1} [1]
Bearing lifetime	3.6 x 10^10 revolutions
Maximum travel/deflection of spring arm	14 N with 14 mm spring travel
Recommended pretension	15 N At 10 mm deflection
Max. permissible working area for the spring (continuous operation)	± 3 mm
Recommended spring deflection	2 mm ... 13 mm
Service life of spring element	> 1.4 million cycles [2]
Mounting position relative to the measuring object	Preferably from above, from below possible [3]
Moment of inertia of the rotor	6.2 gcm^2
Mounted encoder	DFS60, DFS60B-S4PC10000, 1036721
Flange plates	BEF-FA-36-49-MWS075, 2145869
Mounted mechanic	BEF-MWS075-ARM, 2145180

[1] Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

[2] One cycle corresponds to an upward and downward movement of ± 3 mm from the recommended pretension position.

[3] 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, Housing side, male connector (IEC 60529) [1] IP65, shaft side (IEC 60529)
Operating temperature range	–40 °C ... +100 °C [2] –30 °C ... +100 °C [3]
Storage temperature range	–40 °C ... +100 °C, without package

[1] With mating connector fitted.

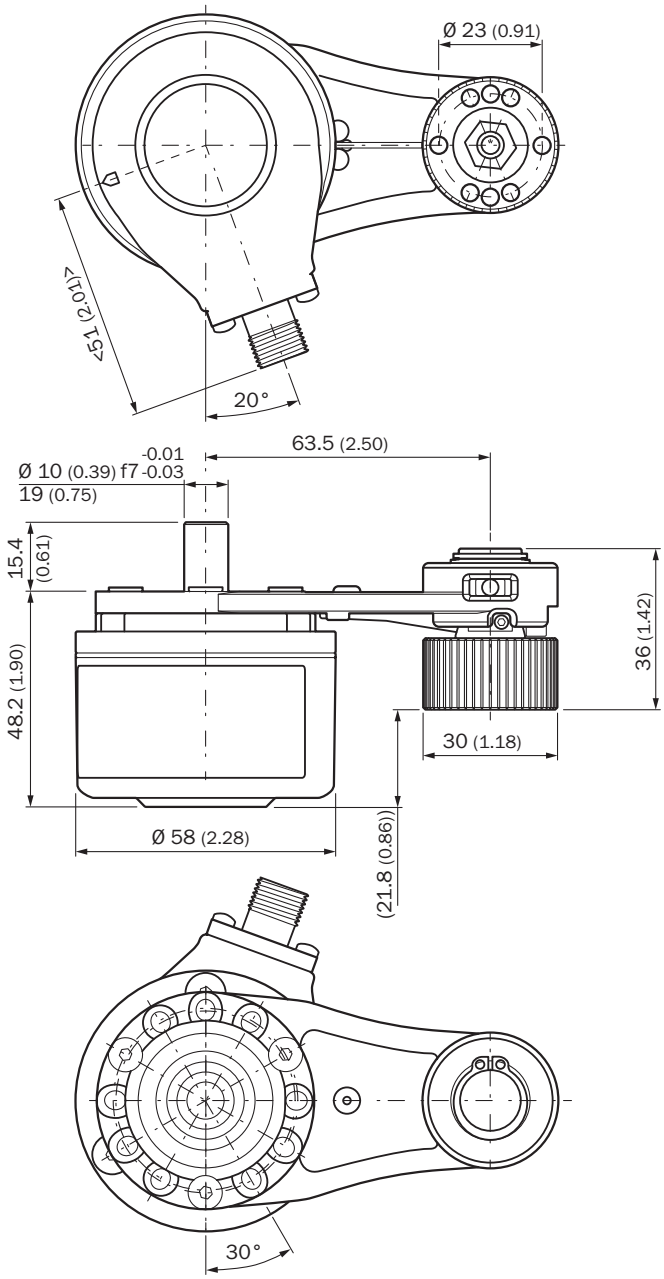
[2] Stationary position of the cable.

[3] Flexible position of the cable.

CERTIFICATES

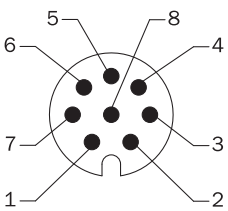
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

DIMENSIONAL DRAWING



Dimensions in mm (inch)

ANSCHLUSSBELEGUNG



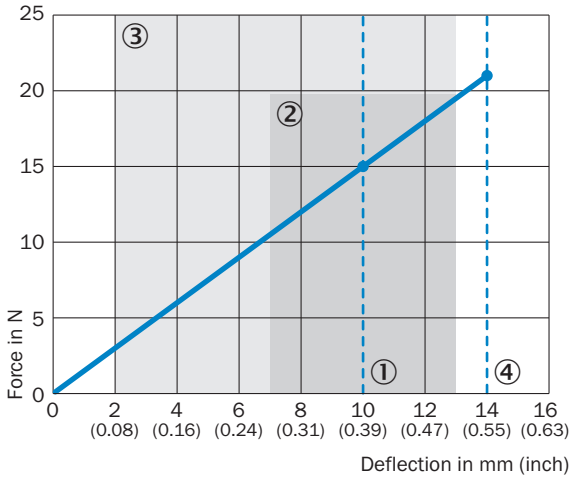
view of M12 male device connector on encoder

PINMale connector M12, 8-pin	PINMale connector M23, 12-pin	Wire colors (cable connection)	TTL/HTL signal	Sin/Cos 1.0 V_{PP}	Explanation
1	6	Brown	¯A	COS-	Signal wire

PINMale connector M12, 8-pin	PINMale connector M23, 12-pin	Wire colors (cable connection)	TTL/HTL signal	Sin/Cos 1.0 V_{PP}	Explanation
2	5	White	A	COS+	Signal wire
3	1	Black	$\bar{B}$	SIN-	Signal wire
4	8	Pink	B	SIN+	Signal wire
5	4	Yellow	$\bar{Z}$	$\bar{Z}$	Signal wire
6	3	Purple	Z	Z	Signal wire
7	10	Blue	GND	GND	Ground connection
8	12	Red	$+U_S$	$+U_S$	Supply voltage
-	9	-	N.c.	N.c.	Not assigned
-	2	-	N.c.	N.c.	Not assigned
-	11	-	N.c.	N.c.	Not assigned
-	7 [1]	Orange	0-SET [1]	N.c.	Set zero pulse [1]
Shielding	Shielding	Shielding	Shielding	Shielding	Shielding connected to housing on encoder side. Connected to ground on control side.

[1] For electrical interfaces only: M, U, V, W with 0-SET function on PIN 7 on M23 plug. The 0-SET input is used to set the zero pulse to the current shaft position. If the 0-SET input is applied to US for longer than 250 ms after it has previously been open or applied to GND for at least 1,000 ms, the current shaft position is assigned zero pulse signal "Z".

DIAGRAMS FORCE DEFLECTION CHART WITH WORKING RANGE



① Proposed Pre-tension: 10 mm
② Allowed operating travel (continuous operation) +/- 3 mm
③ Proposed spring deflection: 2 - 13 mm
④ Maximum spring travel: 14 mm

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/1146359

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

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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