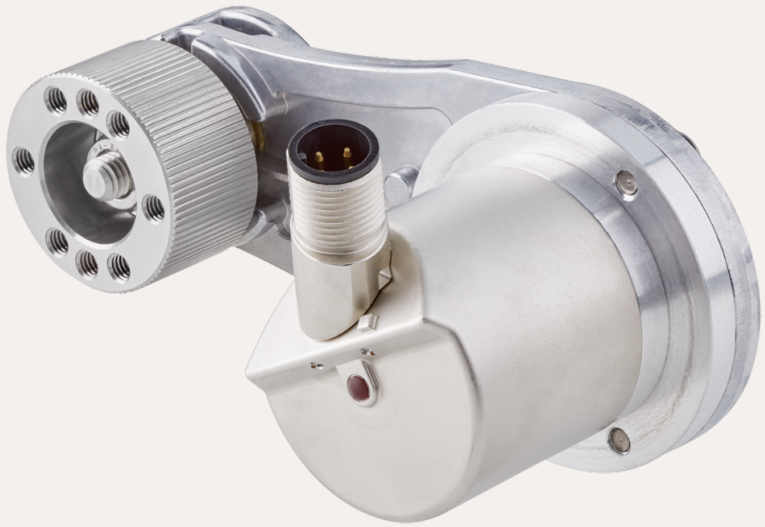
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DATA SHEET

MWS075-12M2AQC114X12

MWS075
Measuring wheel encoders

SICK Sensor Intelligence



Illustration may differ

MEASURING WHEEL ENCODERS

MWS075-12M2AQC114X12

ORDERING INFORMATION

Type	part no.
MWS075-12M2AQC114X12	1145880

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

DETAILED TECHNICAL DATA

PERFORMANCE

Max. resolution (number of steps per revolution x number of revolutions)	14 bit x 12 bit (16,384 x 4,096)
Resolution in pulses/mm	82
Measuring increment (resolution in mm/pulse)	0.012 [1] [2]
Repeatability	< 0.1 mm [3]

[1] Calculation example: Measuring wheel circumference / number of steps per revolution = 200 mm / 16384 steps per revolution = 0.012 mm/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	IO-Link
Communication Interface detail	IO-Link V1.1
Programmable/configurable	✓

ELECTRONICS

Connection type	Male connector, M12, 4-pin, universal
Supply voltage	18 V ... 30 V
Reverse polarity protection	✓

MECHANICS

Measuring wheel circumference	200 mm
Measuring wheel surface	O-ring NBR70 [1]
Mounting	Measuring wheel mounted at the front
Start up torque	< 1 Ncm
Operating torque	< 1 Ncm
Operating speed	≤ 6,000 min^{-1}
Bearing lifetime	3.6 x 10^8 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	2.5 gcm^2
Mounted encoder	AHS/AHM36, AHM36A-SCQC014x12, 1101537
Flange plates	BEF-FA-20-30-MWS075, 2145868
Mounted mechanic	BEF-MWS075-ARM, 2145180
Attached measuring wheel	BEF-MR010020R, 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] 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.

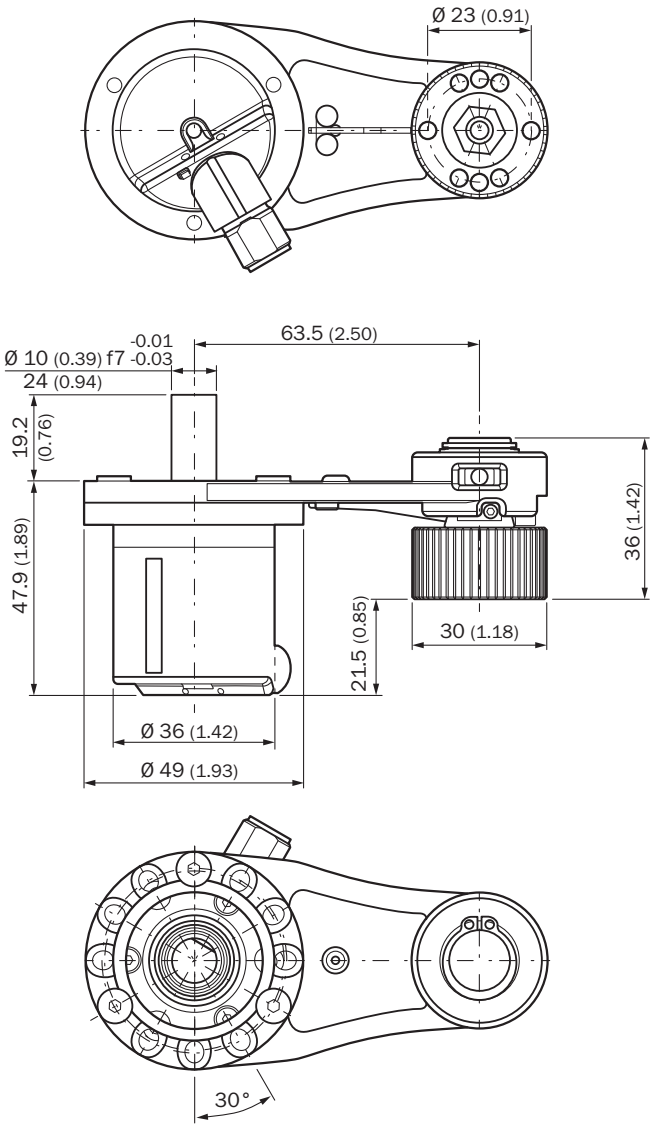
AMBIENT DATA

EMC	According to EN 61000-6-2, EN 61000-6-3 and EN 61131-9
Enclosure rating	IP66 (IEC 60529) IP67 (IEC 60529)
Operating temperature range	–40 °C ... +85 °C
Storage temperature range	–40 °C ... +100 °C, without package

CERTIFICATES

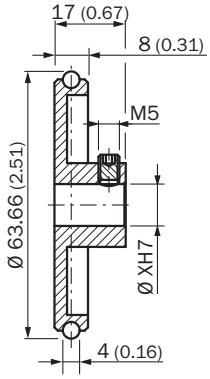
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

DIMENSIONAL DRAWING



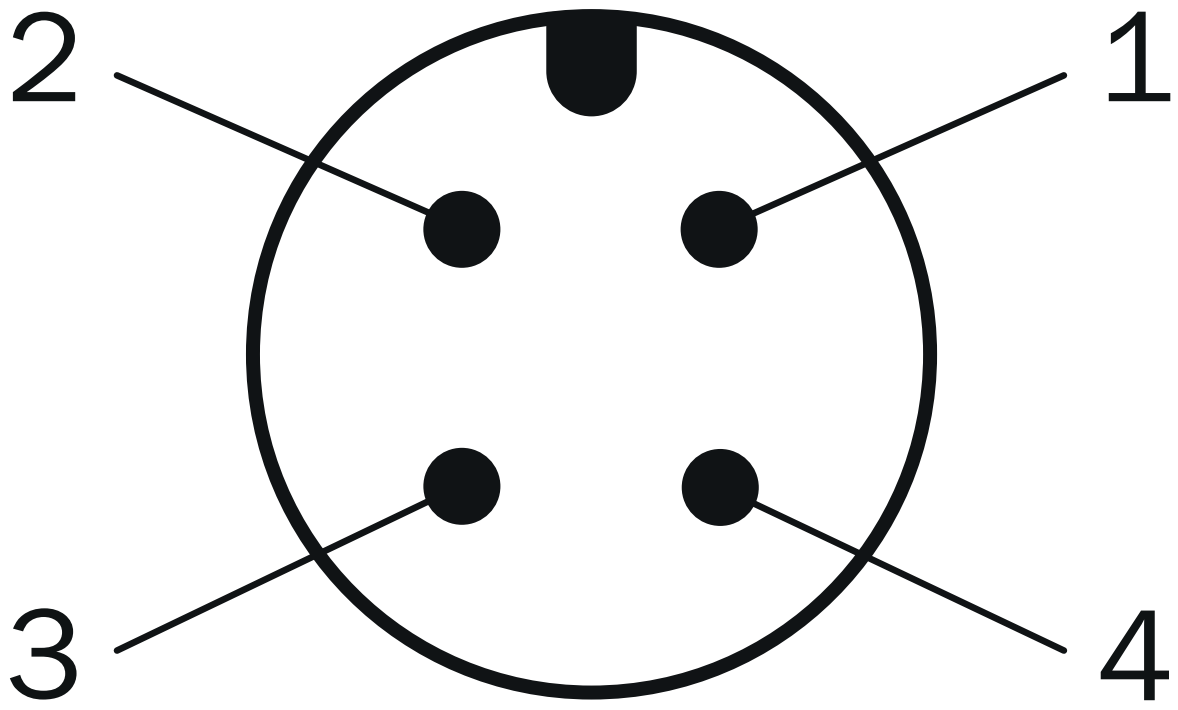
Dimensions in mm (inch)
Please refer to the dimensional drawings in the respective data sheet for the installed encoder.

DIMENSIONAL DRAWING



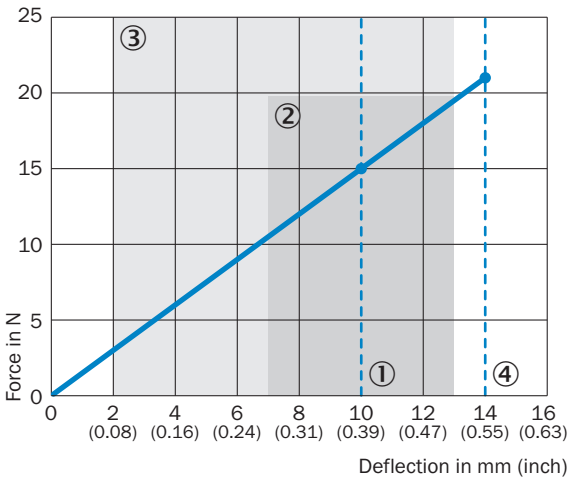
Dimensions in mm (inch)

ANSCHLUSSBELEGUNG



PIN	Wire color	Signal	Function		
–	–	–	Basic	Advanced	Advanced Smart Task
1	Brown	L+	Encoder supply voltage 18-30 V (+Us)		
2	White	I/Q	Not connected - no function	Multifunctional pin (configurable as switching input or switching output)	
3	Blue	L-	Encoder supply voltage 0 V (GND)		
4	Black	C/Q	IO-Link communication		
		–	-		Switching output (SIO mode)

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/1145880

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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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