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DATA SHEET

AHM36I-S4AM014x12

AHS/AHM36
Absolute encoders

SICK Sensor Intelligence



Illustration may differ

ABSOLUTE ENCODERS

AHM36I-S4AM014x12

ORDERING INFORMATION

Type	part no.
AHM36I-S4AM014x12	1142831

Further device versions and accessories at www.sick.com/AHS_AHM36

DETAILED TECHNICAL DATA

FEATURES

ATEX marking	No

SAFETY-RELATED PARAMETERS

$MTTF_D$ (mean time to dangerous failure)	230 years (EN ISO 13849-1) [1]

[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.

PERFORMANCE

Number of steps per revolution (max. resolution)	16,384 (14 bit)
Number of revolutions	2,048 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	14 bit x 12 bit (16,384 x 2,048)
Error limits G	0.35° (at 20 °C) [1]
Repeatability standard deviation σ_r	0.2° (at 20 °C) [2]

[1] In accordance with DIN ISO 1319-1, position of the upper and lower error limit depends on the installation situation, specified value refers to a symmetrical position, i.e. deviation in upper and lower direction is the same.

[2] In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

INTERFACES

Communication interface	SSI
Initialization time	100 ms [1]
Position forming time	125 µs

[1] Valid positional data can be read once this time has elapsed.

[2] Minimum, LOW level (Clock +): 250 ns.

Process data	Position
Code type	Gray
Code sequence parameter adjustable	CW/CCW (V/R) configurable via cable
Clock frequency	2 MHz [2]
Set (electronic adjustment)	H-active (L = 0 - 3 V, H = 4,0 - U_s V)
CW/CCW (counting sequence when turning)	L-active (L = 0 - 1 V, H = 2,0 - Us V)

[1] Valid positional data can be read once this time has elapsed.

[2] Minimum, LOW level (Clock +): 250 ns.

ELECTRONICS

Connection type	Cable, 8-wire, universal, 5 m
Supply voltage	4.5 ... 32 V DC
Power consumption	< 1.3 W (without load)
Reverse polarity protection	✓

MECHANICS

Mechanical design	Solid shaft, face mount flange
Shaft diameter	6 mm
Shaft length	12 mm
Characteristics of the shaft	With flat
Weight	0.2 kg [1]
Shaft material	Stainless steel 1,4305
Flange material	Stainless steel 1,4305
Housing material	Stainless steel 1,4305
Start up torque	1 Ncm (+20 °C)
Operating torque	< 1 Ncm (+20 °C)
Permissible shaft loading	40 N (radial) 20 N (axial)
Operating speed	≤ 6,000 min^{-1} [2]
Moment of inertia of the rotor	2.5 gcm^2
Bearing lifetime	3.6 x 10^8 revolutions
Angular acceleration	≤ 500,000 rad/s^2

[1] Based on devices with male connector.

[2] Allow for self-heating of 3.5 K per 1,000 rpm when designing the operating temperature range.

AMBIENT DATA

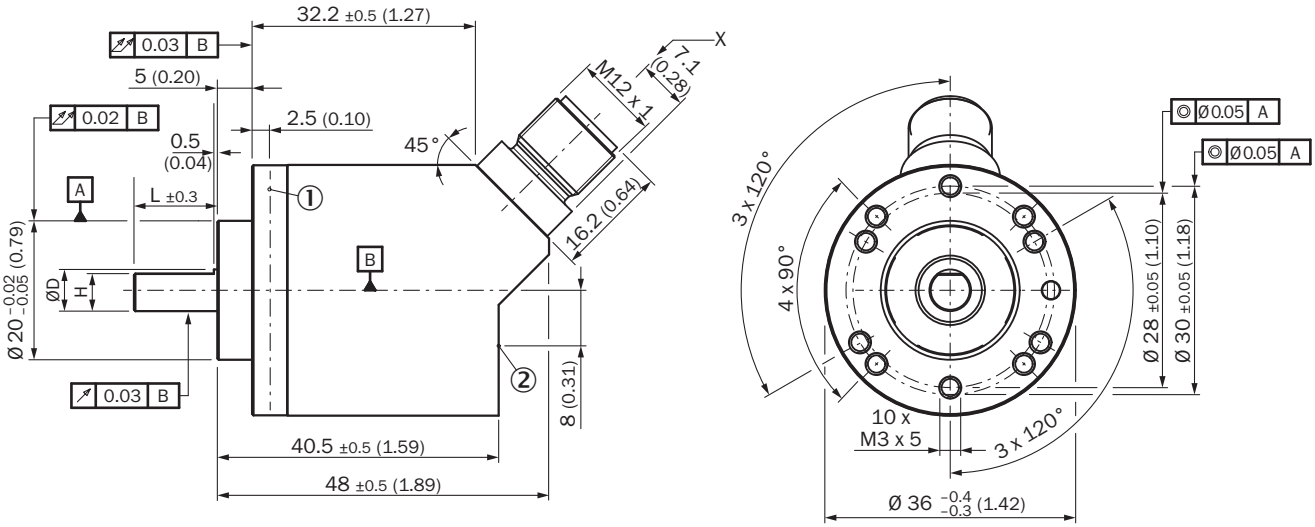
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP67 (IEC 60529) IP69K (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	–40 °C ... +100 °C
Storage temperature range	–40 °C ... +100 °C, without package
Resistance to shocks	100 g, 6 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6) [1]

[1] For side-mounted encoders (horizontal encoder shaft, vertical stator coupling), additional damping measures may be required in some cases as resonances can arise. Furthermore, the cable must be fastened with the shortest possible distance to the encoder.

CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cTUVus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

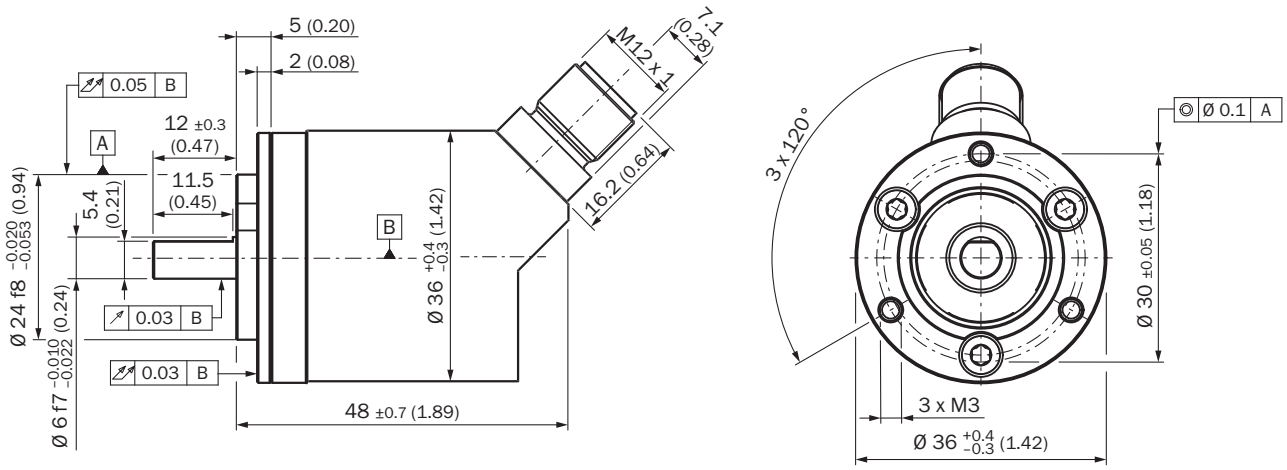
DIMENSIONAL DRAWING SOLID SHAFT, FACE MOUNT FLANGE, MALE CONNECTOR



Dimensions in mm (inch)
Non-tolerated dimensions according to DIN-ISO 2768-mk
① Measuring point for operating temperature
② measuring point for vibrations

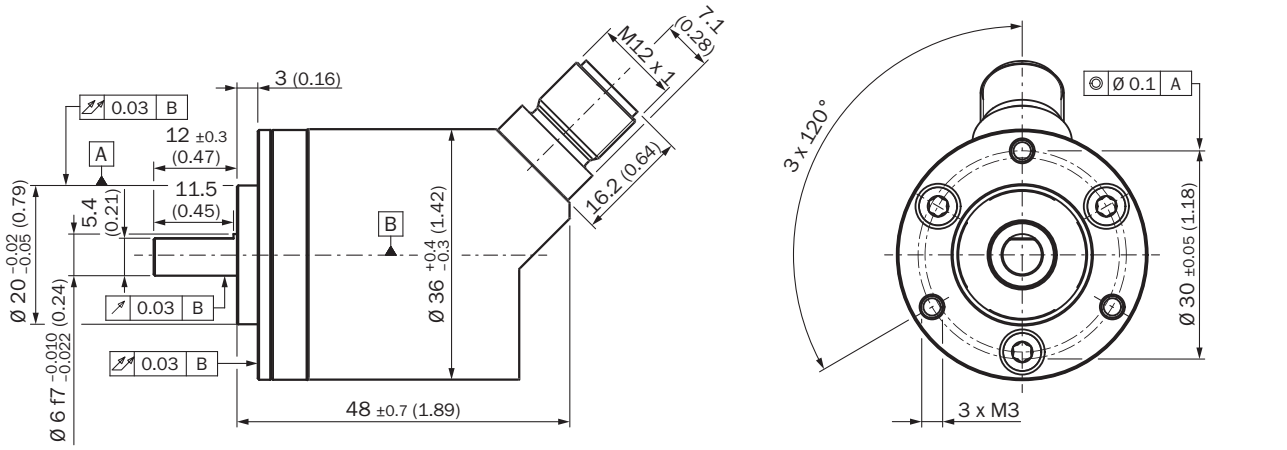
Type	Shaft diameterØ D f7	B	H
AHx36x-S1xxxxxxxx AHx36x-S3xxxxxxxx	6 mm	3,6 mm	5,4 mm
AHx36x-S9xxxxxxxx AHx36x-S5xxxxxxxx	8 mm	3,9 mm	7,5 mm
AHx36x-S2xxxxxxxx AHx36x-S4xxxxxxxx AHx36x-SCxxxxxxxx	10 mm	6 mm	9 mm
AHx36x-SAxxxxxxxx AHx36x-S8xxxxxxxx	1/4″	3,85 mm	5,7 mm
AHx36x-SBxxxxxxxx AHx36x-S7xxxxxxxx	3/8″	4,35 mm	9 mm

ATTACHMENT SPECIFICATIONS SOLID SHAFT, FACE MOUNT FLANGE WITH FLANGE ADAPTER, CENTERING COLLAR D20 ON D24 (BEF-FA-020-024-I, 2103982)



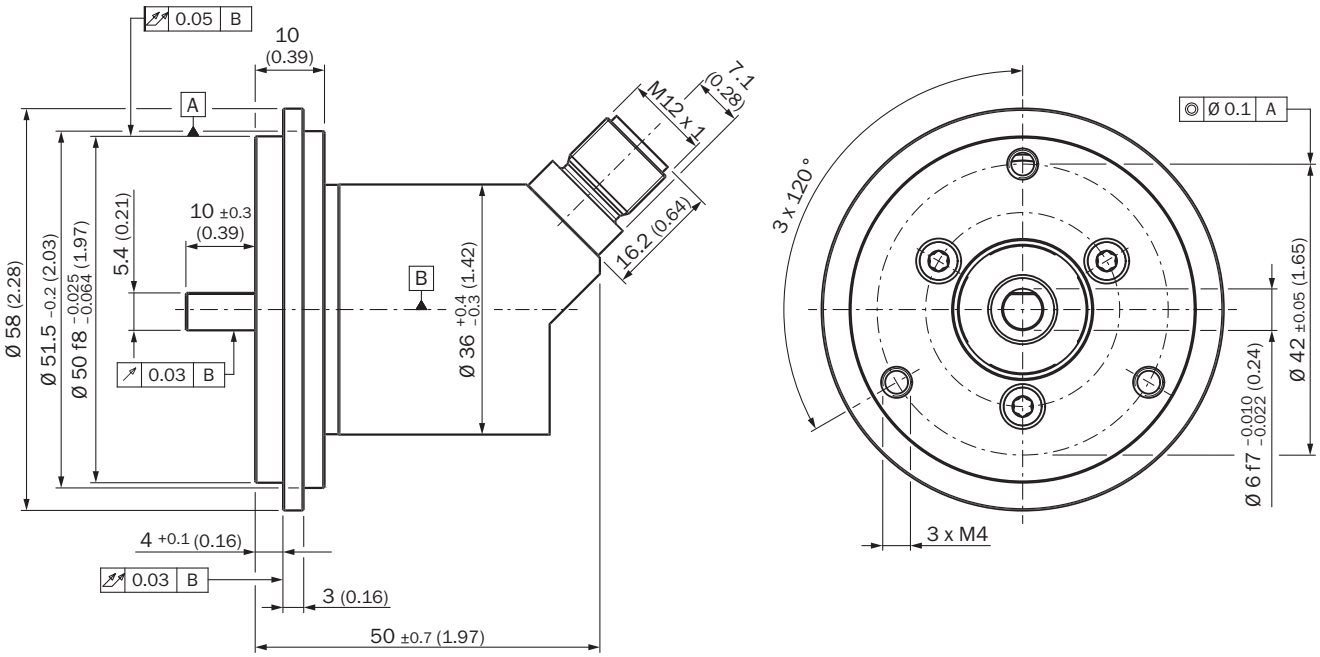
order example for 6 mm shaft diameter: AHx36I-S3xx0xxxxx + BEF-FA-020-024-I (adapter is not pre-assembled)

ATTACHMENT SPECIFICATIONS SOLID SHAFT, FACE MOUNT FLANGE WITH FLANGE ADAPTER, CENTERING COLLAR D20 ON D36, 2 MM HIGH (BEF-FA-020-036-2-I, 2103984)



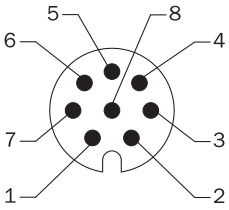
order example for 6 mm shaft diameter: AHx36I-S3xx0xxxxx + BEF-FA-020-036-2-I (adapter is not pre-assembled)

ATTACHMENT SPECIFICATIONS SOLID SHAFT, FACE MOUNT FLANGE WITH FLANGE ADAPTER, CENTERING COLLAR D20 ON D50 (BEF-FA-020-050-I, 2103985)



order example for 6 mm shaft diameter: AHx36I-S3xx0xxxxx + BEF-FA-020-050-I (adapter is not pre-assembled)

ANSCHLUSSBELEGUNG M12 MALE CONNECTOR, 8-PIN AND CABLE, 8-WIRE, SSI/GRAY



view of M12 male device connector on encoder

PIN	Wire colors (cable connection)	Signal	Explanation
1	Brown	Data -	Interface signals
2	White	Data +	Interface signals
3	Black	V/R	Sequence in direction of rotation
4	Pink	SET	Electronic adjust-mentInterface signals
5	Yellow	Clock +	Interface signals
6	Purple	Clock -	Interface signals
7	Blue	GND	Ground connection
8	Red	U_s	Operating voltage
–	–	Shielding	Shielding connected to hous-ing on encoder side. Connect-ed to ground on control side.

Further information as well as suitable accessories, example applications and downloads such as CAD di-mensional models, operating instructions and software can be found at www.sick.com/1142831

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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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