



AHM36I-S3CM014x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
AHM36I-S3CM014x12	1099347

Other models and accessories → www.sick.com/AHS_AHM36

Detailed technical data

Safety-related parameters

MTTF_D (mean time to dangerous failure)	270 years (EN ISO 13849-1) ¹⁾
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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	4,096 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	14 bit x 12 bit (16,384 x 4,096)
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	CANopen
Data protocol	CANopen CiA DS-301 V4.02, CiA DSP-305 LSS, Encoder Profile: - CiA DS-406, V3.2. - Class C2
Address setting	0 ... 127, default: 5

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

²⁾ See accessories.

Data transmission rate (baud rate)	20 kbit/s ... 1,000 kbit/s, default: 125 kbit/s
Initialization time	2 s ¹⁾
Process data	Position, speed, Temperature
Parameterising data	Number of steps per revolution Number of revolutions PRESET Counting direction Sampling rate for speed calculation Unit for output of the speed value Round axis functionality Electronic cams(2 channels x 8 cams)
Available diagnostics data	Minimum and maximum temperature Maximum speed Power-on counter Operating hours counter power-on/motion Counter of direction changes/number of movements cw/number of movements ccw Minimum and maximum operating voltage
Status information	CANopen status via status LED
Bus termination	Via external terminator ²⁾

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

²⁾ See accessories.

Electronics

Connection type	Cable, 5-wire, universal, 5 m
Supply voltage	10 ... 30 V
Power consumption	≤ 1.5 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
Material, cable	PUR
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 ... +85 °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.

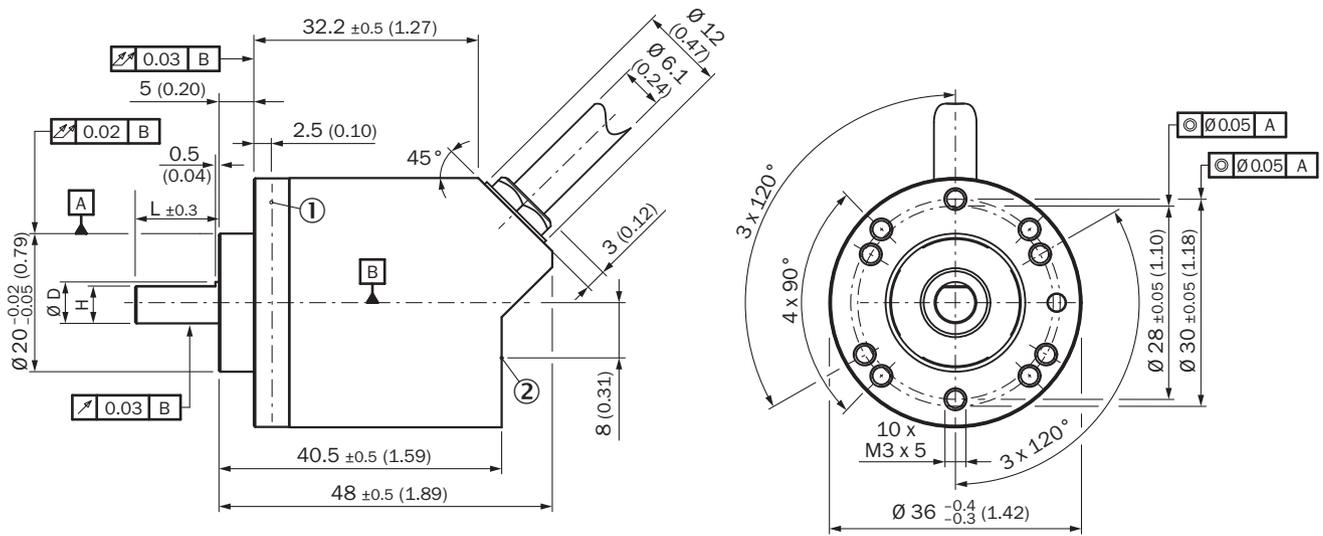
Certificates

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

Classifications

ECLASS 5.0	27270502
ECLASS 5.1.4	27270502
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270502
ECLASS 8.0	27270502
ECLASS 8.1	27270502
ECLASS 9.0	27270502
ECLASS 10.0	27270502
ECLASS 11.0	27270502
ECLASS 12.0	27270502
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing Solid shaft, face mount flange, cable



Dimensions in mm (inch)

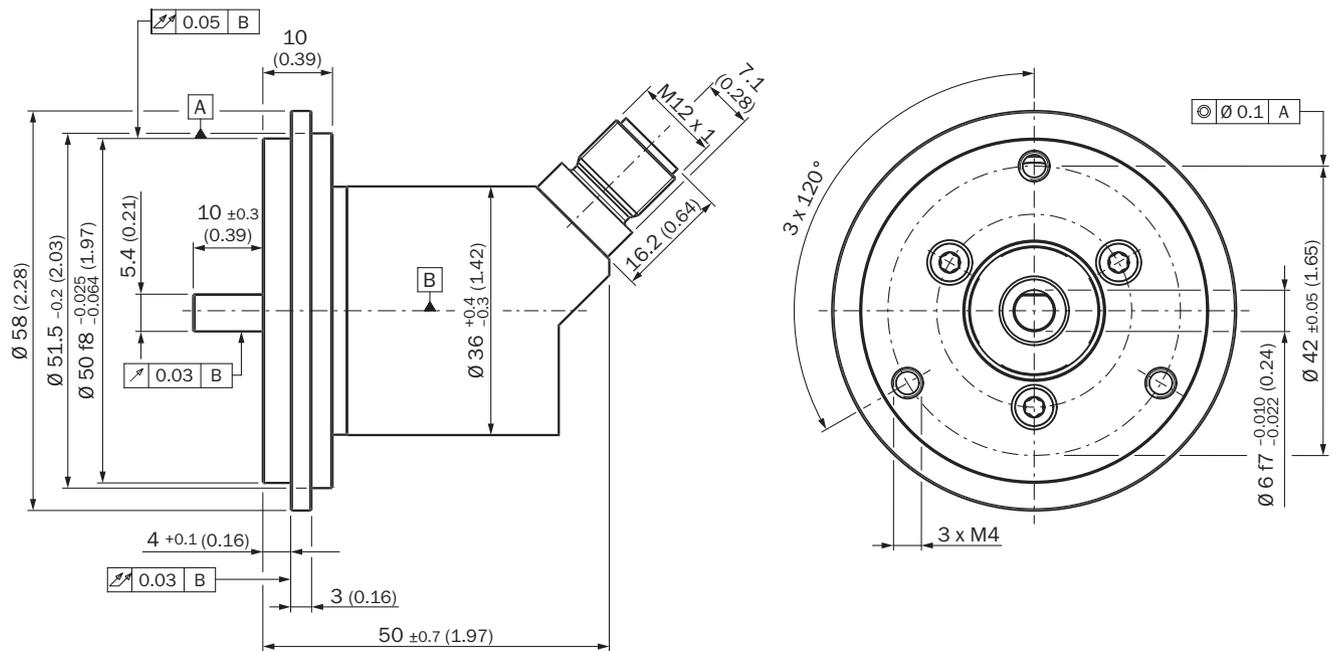
Non-tolerated dimensions according to DIN-ISO 2768-mk

① Measuring point for operating temperature

② measuring point for vibrations

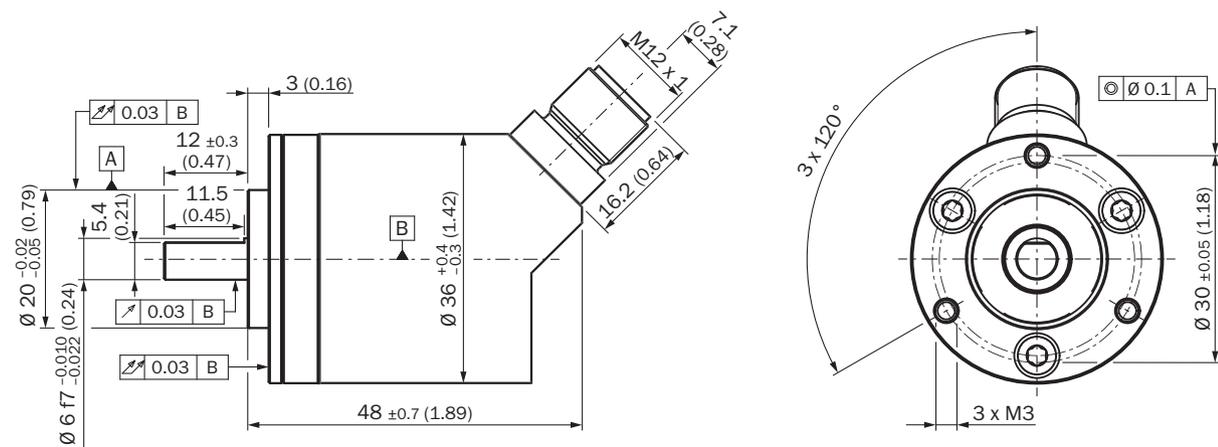
Type	Shaft diameter $\varnothing D f7$	B	H
AHx36x-S1xxxxxxx AHx36x-S3xxxxxxx	6 mm	3,6 mm	5,4 mm
AHx36x-S9xxxxxxx AHx36x-S5xxxxxxx	8 mm	3,9 mm	7,5 mm
AHx36x-S2xxxxxxx AHx36x-S4xxxxxxx AHx36x-SCxxxxxxx	10 mm	6 mm	9 mm
AHx36x-SAxxxxxxx AHx36x-S8xxxxxxx	1/4"	3,85 mm	5,7 mm
AHx36x-SBxxxxxxx AHx36x-S7xxxxxxx	3/8"	4,35 mm	9 mm

Attachment specifications Solid shaft, face mount flange with flange adapter, centering collar D20 on D50 (BEF-FA-020-050-I, 2103985)



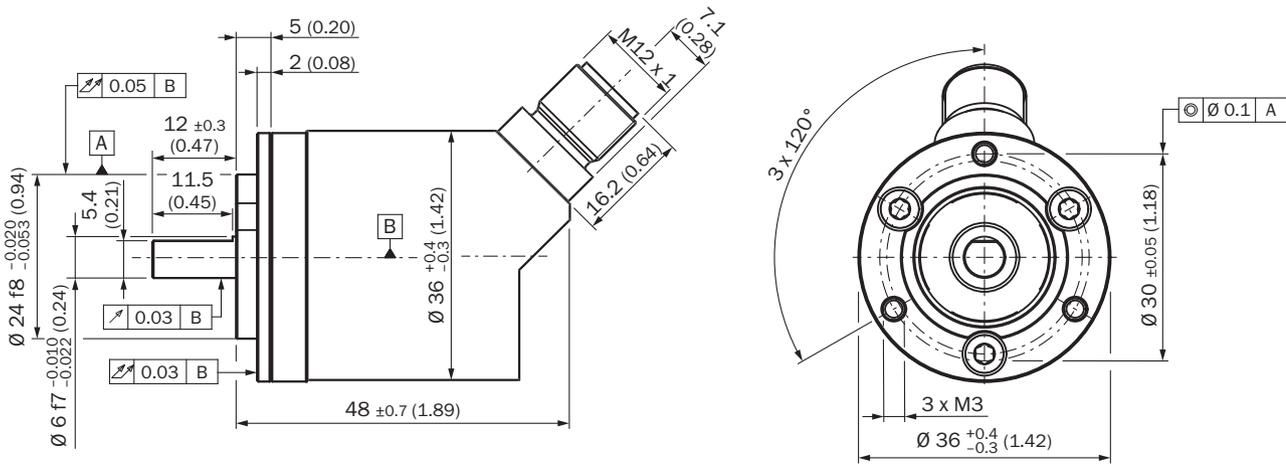
order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-050-I (adapter is not pre-assembled)

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)



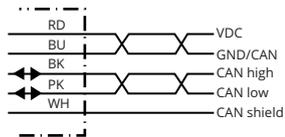
order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-036-2-I (adapter is not pre-assembled)

Attachment specifications Solid shaft, face mount flange with flange adapter, centering collar D20 on D24 (BEF-FA-020-024-I, 2103982)



order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-024-I (adapter is not pre-assembled)

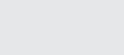
Anschlussbelegung



PIN	Signal	Wire colors (cable connection)	Function
1	CAN Shield	White	Shielding
2	VDC	Red	Supply voltageEncoder 10 V DC ... 30 V DC
3	GND/CAN GND	Blue	0 V (GND)
4	CAN high	Black	CAN signal
5	CAN low	Pink	CAN signal
Housing	-	-	Shielding

Recommended accessories

Other models and accessories → www.sick.com/AHS_AHM36

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² Application: Hygienic and washdown zones 	YF12ES5-0075S5586A	2097335
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 5-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² Application: Hygienic and washdown zones 	YM12ES5-0075S5586A	2097336
 	<ul style="list-style-type: none"> Connection type head A: Female connector, terminal box, 8-pin, straight Connection type head B: Female connector, D-Sub, 9-pin, straight Signal type: CANopen Cable: 0.4 m Description: CANopen, shielded 	DDL-0D04-GOM5BC9	2083355
shaft adaptation			
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Bellows coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub 	KUP-0606-B	5312981
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub 	KUP-0610-B	5312982
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Double loop coupling, shaft diameter 6 mm / 10 mm, max. shaft offset: radially +/- 2.5 mm, axially +/- 3 mm, angle +/- 10 degrees; max. speed 3.000 rpm, -30 to +80 degrees Celsius, torsional spring stiffness of 25 Nm/rad 	KUP-0610-D	5326697
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Spring washer coupling, shaft diameter 6 mm / 10 mm, Maximum shaft offset: radial +/- 0.3 mm, axial +/- 0.4 mm, angular +/- 2.5°; max. speed 12,000 rpm, -10° to +80 °C, max. torque 60 Ncm; material: aluminum flange, glass fiber-reinforced polyamide membrane and hardened steel coupling pin 	KUP-0610-F	5312985
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Double-loop coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial ± 2.5 mm, axial ± 3 mm, angular ± 10°; max. speed 3,000 rpm, -30 °C to +80 °C, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange 	KUP-0606-D	5340152
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 6 mm / 6 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular ± 1.3°, max. speed 19,000 rpm, angle of twist max. 10°, -30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane 	KUP-0606-J	2127057
	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 6 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular ± 1.3°, max. speed 19,000 rpm, angle of twist max. 10°, -30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane 	KUP-0610-J	2127056

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:

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