



AHM36B-S1AK012x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
AHM36B-S1AK012x12	1097915

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

Detailed technical data

Safety-related parameters

MTTF_D (mean time to dangerous failure)	230 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)	4,096 (12 bit)
Number of revolutions	4,096 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	12 bit x 12 bit (4,096 x 4,096)
Error limits G	0.35° (at 20 °C) ¹⁾
Repeatability standard deviation σ_r	0.25° (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
Process data	Position
Code type	Gray
Code sequence parameter adjustable	CW/CCW (V/R) configurable via cable
Clock frequency	2 MHz ²⁾

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

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

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 - U _s 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, 1.5 m
Supply voltage	4.5 ... 32 V DC
Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓

Mechanics

Mechanical design	Solid shaft, Servo flange
Shaft diameter	6 mm
Shaft length	12 mm
Characteristics of the shaft	With flat
Weight	0.12 kg ¹⁾
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Zinc
Material, cable	PUR
Start up torque	0.5 Ncm (+20 °C)
Operating torque	< 0.5 Ncm (+20 °C)
Permissible shaft loading	40 N (radial) 20 N (axial)
Operating speed	≤ 6,000 min ⁻¹
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.

Ambient data

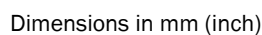
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP65 (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	-20 °C ... +70 °C
Storage temperature range	-40 °C ... +100 °C, without package
Resistance to shocks	100 g, 6 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

Classifications

ECLASS 5.0	27270502
ECLASS 5.1.4	27270502
ECLASS 6.0	27270590

Certificates

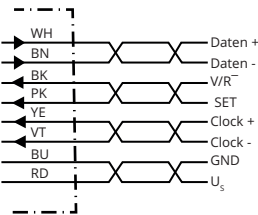
Dimensional drawing Solid shaft, servo flange, cable



- ① Measuring point for operating temperature
② measuring point for vibrations

Type	Shaft diameterØ D f7	B	H
AHx36x-S1xxxxxxxxAHx36x-S3xxxxxxxx	6 mm	3,6 mm	5,4 mm
AHx36x-S9xxxxxxxxAHx36x-S5xxxxxxxx	8 mm	3,9 mm	7,5 mm
AHx36x-S2xxxxxxxxAHx36x-S4xxxxxxxxAHx36x-SCxxxxxxxx	10 mm	6 mm	9 mm
AHx36x-SAxxxxxxxxAHx36x-S8xxxxxxxx	1/4"	3,85 mm	5,7 mm
AHx36x-SBxxxxxxxxAHx36x-S7xxxxxxxx	3/8"	4,35 mm	9 mm

Anschlussbelegung









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 adjustmentInterface signals
5	Yellow	Clock +	Interface signals
6	Purple	Clock -	Interface signals
7	Blue	GND	Ground connection
8	Red	U _S	Operating voltage
-	-	Shielding	Screen connected to housing on encoder side. Connected to ground on control side.

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: Male connector, M12, 8-pin, straight, A-coded• Signal type: Incremental• Cable: CAT5, CAT5e• Description: Incremental, shielded• Connection systems: IDC quick connection• Permitted cross-section: 0.14 mm² ... 0.34 mm²	STE-1208-GA01	6044892

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> Description: Servo clamps, small, for servo flange (clamps, eccentric fastener), 3 pcs, without mounting material Items supplied: Without mounting hardware 	BEF-WK-RESOL	2039082
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 $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, 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 $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, 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 $\pm 2.5^\circ$; max. speed 12,000 rpm, -10° to $+80^\circ\text{C}$, 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: Claw coupling, shaft diameter 6 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular $\pm 1.3^\circ$, max. speed 19,000 rpm, angle of twist max. 10°, -30°C to $+80^\circ\text{C}$, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane 	KUP-0610-J	2127056

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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.”

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