



AHM36B-S2AL012x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
AHM36B-S2AL012x12	1101264

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

Detailed technical data

Performance

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
Process data	Position
Initialization time	100 ms ¹⁾
Position forming time	125 µs
SSI	
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 - U _s V)

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

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

Electrical data

Connection type	Cable, 8-wire, universal, 3 m
Supply voltage	4.5 ... 32 V DC

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.

Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓
MTTFd: mean time to dangerous failure	230 years (EN ISO 13849-1) ¹⁾

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Mechanical data

Mechanical design	Solid shaft, Servo flange
Shaft diameter	10 mm
Shaft length	12 mm
Weight	0.12 kg ¹⁾
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Zinc
Material, cable	PUR
Start up torque	0.5 Ncm
Operating torque	< 0.5 Ncm
Permissible Load capacity of shaft	40 N / radial 20 N / axial
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
Operating speed	≤ 6,000 min ⁻¹ 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	IP65 (according to 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 (according to EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

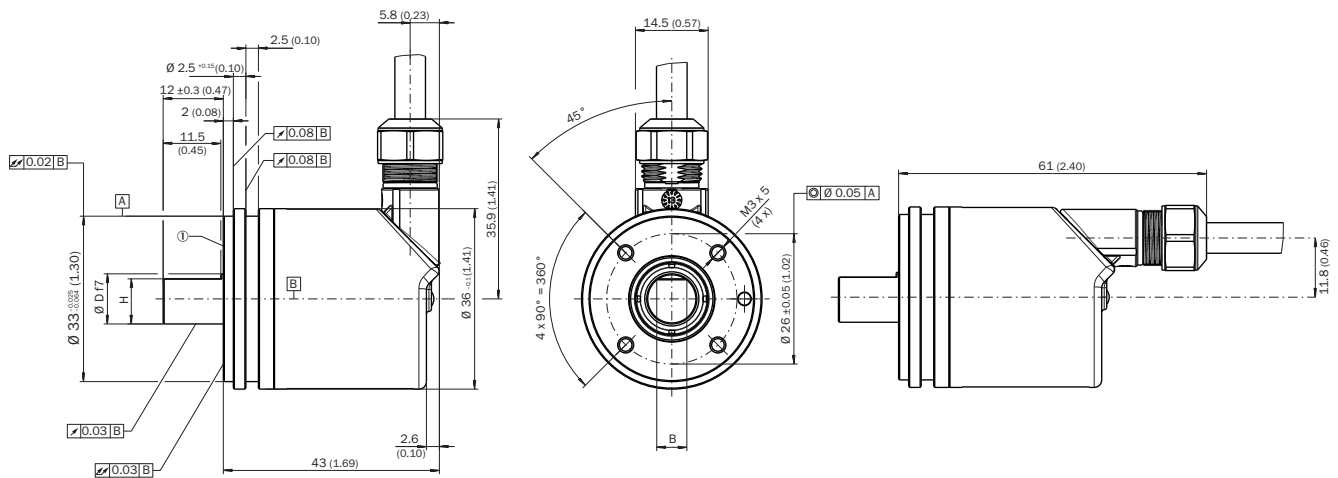
Classifications

ECI@ss 5.0	27270502
ECI@ss 5.1.4	27270502
ECI@ss 6.0	27270590
ECI@ss 6.2	27270590
ECI@ss 7.0	27270502
ECI@ss 8.0	27270502
ECI@ss 8.1	27270502

ECI@ss 9.0	27270502
ECI@ss 10.0	27270502
ECI@ss 11.0	27270502
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

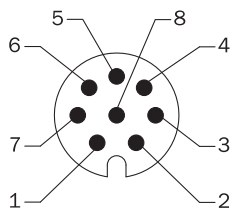
Solid shaft, servo flange, cable



① Measuring point for operating temperature

PIN assignment

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 adjustment Interface signals
5	Yellow	Clock +	Interface signals
6	Purple	Clock -	Interface signals

PIN	Wire colors (cable connection)	Signal	Explanation
7	Blue	GND	Ground connection
8	Red	U _S	Operating voltage
		Screen	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.
Other mounting accessories			
	Servo clamps, small, for servo flange (clamping claws, mounting eccentric), 3 pcs, without mounting hardware, without mounting hardware	BEF-WK-RESOL	2039082
Shaft adaptation			
	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 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982
	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
	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
	Double loop coupling, shaft diameter 8 mm / 10 mm, max. shaft offset: radially ± 0.25 mm, axially ± 0.4 mm, angle ± 4 degrees; max. speed 10,000 rpm, -30 to $+120$ degrees Celsius, torsional spring stiffness of 150 Nm/rad	KUP-0810-D	5326704
	Bellows coupling, shaft diameter 10 mm / 10 mm; maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular $\pm 4^\circ$; max. revolutions 10,000 rpm, -30° to $+120^\circ\text{C}$, max. torque 80 Ncm; material: stainless steel bellows, aluminum clamping hubs	KUP-1010-B	5312983
	Double loop coupling, shaft diameter 10 mm / 10 mm, Maximum shaft offset: radial ± 2.5 mm, axial ± 3 mm, angular $\pm 10^\circ$; max. speed 3,000 rpm, -30° to $+80^\circ\text{C}$, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange	KUP-1010-D	5326703
	Spring washer coupling, shaft diameter 10 mm / 10 mm, maximum shaft offset, radial ± 0.3 mm, axial ± 0.4 mm, angle $\pm 2.5^\circ$, torsion spring stiffness 30 Nm/rad; material: aluminum flange, glass-fiber reinforced polyamide membrane and hardened steel coupling pin	KUP-1010-F	5312986
	10 mm / 12 mm; maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular $\pm 4^\circ$; max. revolutions 10,000 rpm, -30° to $+120^\circ\text{C}$, max. torque 80 Ncm; material: stainless steel bellows, aluminum clamping hubs	KUP-1012-B	5312984
	Double loop coupling, shaft diameter 10 mm / 12 mm, Maximum shaft offset: radial ± 2.5 mm, axial ± 3 mm, angular $\pm 10^\circ$; max. speed 3,000 rpm, -30° to $+80^\circ\text{C}$, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange	KUP-1012-D	5326702

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, shielded	STE-1208-GA01	6044892

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