



AHM36A-S4PZ000S01

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
AHM36A-S4PZ000S01	1145834

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

Detailed technical data

Features

Special device	✓
Specialty	Cable, PUR, with male connector, M12, 0.2 m Max. resolution: 13 bit x 12 bit (8,192 x 4,096)
Standard reference device	AHM36A-S4PK014x12, 1072584

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)	8,192 (13 bit)
Number of revolutions	4,096 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	13 bit x 12 bit (8,192 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	SSI
Initialization time	100 ms ¹⁾

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

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

Position forming time	125 µs
Process data	Position
Parameterising data	Number of steps per revolution Number of revolutions PRESET Counting direction Code type Offset of position bits Position error bit Round axis functionality SSI mode
Code type	Gray, binary
Code sequence parameter adjustable	CW/CCW (V/R) configurable via programming tool or 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.

Electronics

Connection type	Special version
Connection type Detail	Cable, PUR, with male connector, M12, 0.2 m
Supply voltage	4.5 ... 32 V DC
Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓

Mechanics

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 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	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
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	IP66 (IEC 60529) IP67 (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)

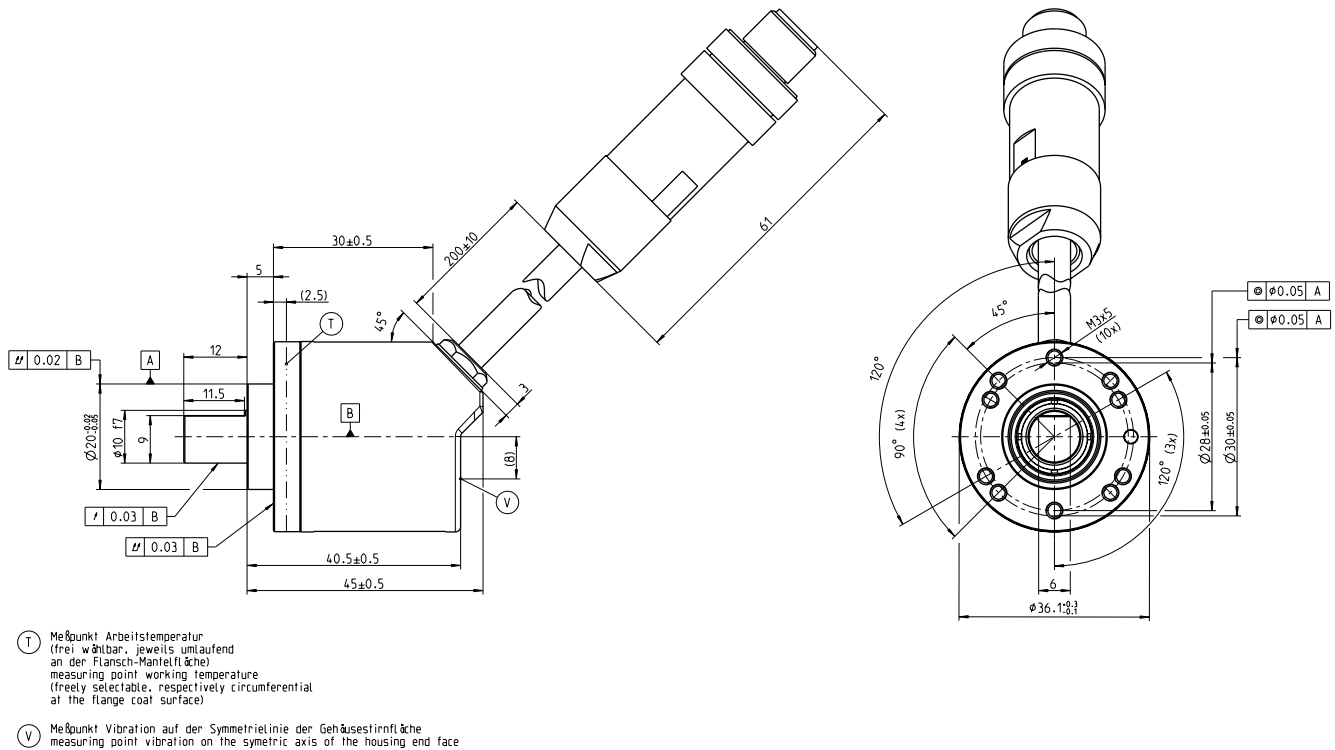
Classifications

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

Certificates

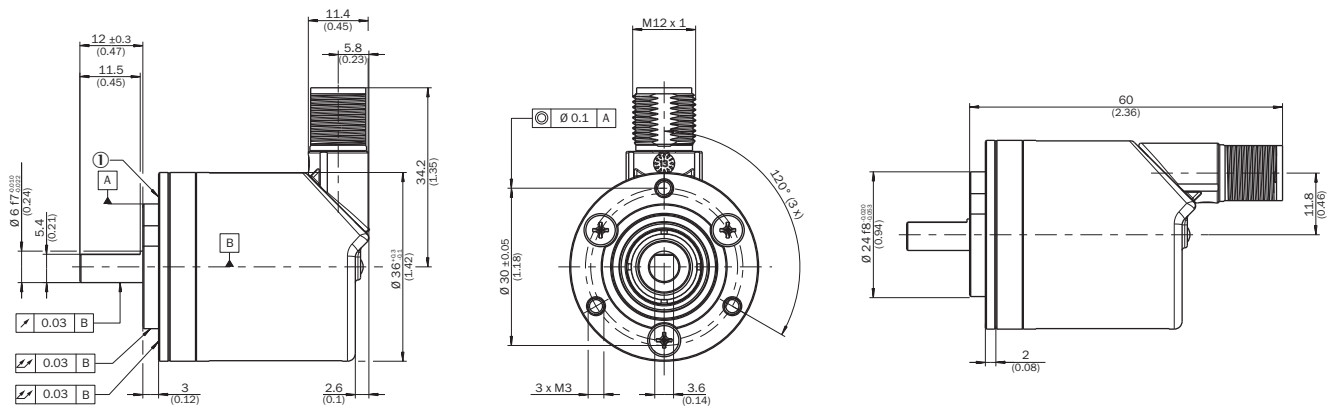
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cTUVus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing



Dimensions in mm (inch)

Attachment specifications Solid shaft, face mount flange with flange adapter, centering collar D20 on D24 (BEF-FA-020-024, 2072294)



order example for 6 mm shaft diameter: AHx36x-S3xx0xxxxx + BEF-FA-020-024 (adapter is not pre-assembled)

① Measuring point for operating temperature

① Measuring point for operating temperature

[illegible]

① Measuring point for operating temperature

PIN	Wire colors (cable connection)	Signal	Explanation
1	Brown	Data -	Interface signals

PIN	Wire colors (cable connection)	Signal	Explanation
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
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			
	Connection type head A: Female connector, terminal box, 8-pin, straight Connection type head B: Male connector, D-Sub, 9-pin, straight Signal type: SSI + incremental Cable: 0.5 m, 4-wire, PVC Description: SSI + incremental, shielded Note: Programming adapter cable for programming tool PGT-10-Pro and PGT-08-S	DSL-0D08-G0M5AC3	2061739
	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.
shaft adaptation			
	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
	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
	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
	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
	Product segment: Shaft adaptation Product: Shaft couplings Description: 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
	Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 8 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-0810-J	2128267
	Product segment: Shaft adaptation Product: Shaft couplings Description: 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 120 Ncm; material: stainless steel bellows, aluminum clamping hubs	KUP-1010-B	5312983
	Product segment: Shaft adaptation Product: Shaft couplings Description: 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
	Product segment: Shaft adaptation Product: Shaft couplings Description: 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
	Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 10 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-1010-J	2127054
	Product segment: Shaft adaptation Product: Shaft couplings	KUP-1012-B	5312984

	Brief description	Type	part no.
 	Description: 10 mm / 12 mm; maximum shaft offset: radial +/- 0.25 mm, axial +/- 0.4 mm, angular +/- 4°; max. revolutions 10,000 rpm, -30 ° to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum clamping hubs		
	Product segment: Shaft adaptation Product: Shaft couplings Description: Double loop coupling, shaft diameter 10 mm / 12 mm, Maximum shaft offset: radial +/- 2.5 mm, axial +/- 3 mm, angular +/- 10°; max. speed 3,000 rpm, -30 ° to +80 °C, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange	KUP-1012-D	5326702
	Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 10 mm / 12 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-1012-J	2128265
programming devices			
	Product segment: Programming devices Product family: PGT-08-S Description: USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders. Not compatible with the portable SOPAS ET versions.	PGT-08-S	1036616
	Product segment: Programming devices Product family: PGT-10 Pro Description: Programming unit display for programmable SICK DFS60, DFV60, AFS/AFM60, AHS/AHM36 encoders, and wire draw encoder with DFS60, AFS/AFM60 and AHS/AHM36. Compact dimensions, low weight, and intuitive operation. Items supplied: 1 x PGT-10-Pro stand-alone programming tool, 4 x alkaline type batteries, 1.5 V Mignon (AA)	PGT-10-Pro	1072254

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.”

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