

# AHS36A-S1PC016384

AHS/AHM36

**ABSOLUTE ENCODERS** 





#### Ordering information

Туре	Part no.
AHS36A-S1PC016384	1066014

Other models and accessories → www.sick.com/AHS\_AHM36

Illustration may differ



#### Detailed technical data

#### Performance

Number of steps per revolution (max. resolution)	16,384 (14 bit)
Error limits G	0.35° (at 20 °C) <sup>1)</sup>
Repeatability standard deviation $\boldsymbol{\sigma}_{r}$	0.2° (at 20 °C) <sup>2)</sup>

<sup>1)</sup> 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.

#### Interfaces

Communication interface	SSI
Process data	Position
Parameterising data	Number of steps per revolution PRESET Counting direction Code type Offset of position bits Position error bit SSI mode
Initialization time	100 ms <sup>1)</sup>
Position forming time	125 μs
SSI	
Code type	Gray, binary
Code sequence parameter adjustable	CW/CCW (V/R) configurable via programming tool or cable
Clock frequency	2 MHz <sup>2)</sup>
Set (electronic adjustment)	H-active (L = $0 - 3 \text{ V}$ , H = $4.0 - U_s \text{ V}$ )
CW/CCW (counting sequence when turning)	L-active (L = 0 - 1 V, H = 2,0 - Us V)

<sup>&</sup>lt;sup>1)</sup> Valid positional data can be read once this time has elapsed.

 $<sup>^{2)}\,\</sup>mbox{In accordance}$  with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

<sup>&</sup>lt;sup>2)</sup> Minimum, LOW level (Clock +): 250 ns.

#### Electrical data

Connection type	Male connector, M12, 8-pin, universal
Supply voltage	4.5 32 V DC
Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓
MTTFd: mean time to dangerous failure	230 years (EN ISO 13849-1) <sup>1)</sup>

<sup>1)</sup> 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.

#### Mechanical data

Mechanical design	Solid shaft, Servo flange
Shaft diameter	6 mm
Shaft length	12 mm
Weight	0.12 kg <sup>1)</sup>
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Zinc
Material, cable	PUR
Start up torque	1 Ncm
Operating torque	< 1 Ncm
Permissible Load capacity of shaft	40 N / radial 20 N / axial
Moment of inertia of the rotor	2.5 gcm <sup>2</sup>
Bearing lifetime	3.6 x 10^8 revolutions
Angular acceleration	≤ 500,000 rad/s²
Operating speed	≤ 6,000 min <sup>-1 2)</sup>

 $<sup>^{1)}</sup>$  Based on devices with male connector.

#### Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP66 (according to IEC 60529) IP67 (according to 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 (according to EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz 2,000 Hz (according to EN 60068-2-6)

#### Classifications

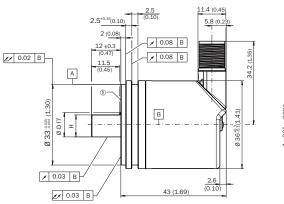
ECI@ss 5.0	27270502
ECI@ss 5.1.4	27270502
ECI@ss 6.0	27270590
ECI@ss 6.2	27270590

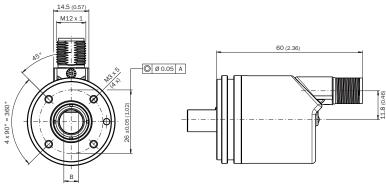
 $<sup>^{2)}\,\</sup>mathrm{Allow}$  for self-heating of 3.5 K per 1,000 rpm when designing the operating temperature range.

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, male connector

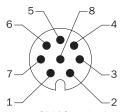




① Measuring point for operating temperature

#### 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

PIN	Wire colors (cable connection)	Signal	Explanation
6	Purple	Clock -	Interface signals
7	Blue	GND	Ground connection
8	Red	$U_S$	Operating voltage
		Screen	Screen connected to hous- ing on encoder side. Connect- ed to ground on control side.

#### Recommended accessories

Other models and accessories → www.sick.com/AHS\_AHM36

	Brief description	Туре	Part no.		
Other mountii	Other mounting accessories				
<b>3 3 3</b>	Servo clamps, small, for servo flange (clamping claws, mounting eccentric), 3 pcs, without mounting hardware, without mounting hardware	BEF-WK-RESOL	2039082		
Shaft adaptat	Shaft adaptation				
	Bellows coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial $\pm$ 0.25 mm, axial $\pm$ 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 80 Ncm; material: stainless steel bellows, aluminum hub	KUP-0606-B	5312981		
	Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial $\pm$ 0.25 mm, axial $\pm$ 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °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 +/- 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		
Programming	and configuration tools				
	USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders	PGT-08-S	1036616		
A IS 'S Y	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.	PGT-10-Pro	1072254		
Plug connecto	ors and cables				
<u></u>	Head A: cable Head B: Flying leads Cable: SSI, Incremental, HIPERFACE <sup>®</sup> , PUR, halogen-free, shielded	LTG-2308-MWENC	6027529		
-	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, Incremental, PUR, halogen-free, shielded	LTG-2612-MW	6028516		
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866		

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## ABSOLUTE ENCODERS

	Brief description	Туре	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 25 m	DOL-1208-G25MAC1	6067859
- F	Head A: female connector, M12, 8-pin, straight Head B: male connector, D-Sub, 9-pin, straight Cable: SSI, PUR, halogen-free, shielded, 0.5 m Suitable for use with SSI interfaces, not suitable for use with SSI + Incremental interface or SSI + Sin/Cos., programming adapter cable for programming tool PGT-10-Pro and PGT-08-S	DSL-2D08-G0M5AC2	2048439
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, SSI, shielded	DOS-1208-GA01	6045001

## 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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