

# AHM36A-BAPK014x12

AHS/AHM36 SSI

**ABSOLUTE ENCODERS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
AHM36A-BAPK014x12	1066010

Other models and accessories → [www.sick.com/AHS\\_AHM36\\_SSI](http://www.sick.com/AHS_AHM36_SSI)

Illustration may differ



### Detailed technical data

#### Performance

<b>Number of steps per revolution</b>	16,384 (max.)
<b>Number of revolutions</b>	4,096 (max.)
<b>Max. resolution (singleturn, multiturn)</b>	16,384 (14 bit), 4,096 (12 bit)
<b>Error limits G</b>	0.35° (at 20 °C) <sup>1)</sup>
<b>Repeatability standard deviation <math>\sigma_r</math></b>	0.25° (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.

<sup>2)</sup> In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

#### Interfaces

<b>Communication interface</b>	SSI
<b>Parameterising data</b>	Number of steps per revolution Number of revolutions (only Multiturn version) PRESET Counting direction Code type Offset of position bits Position error bit Round axis functionality (only Multiturn version) SSI mode
<b>Initialization time</b>	100 ms <sup>1)</sup>
<b>Position forming time</b>	125 µs
<b>SSI</b>	
Code type	Gray, binary
Code sequence parameter adjustable	CW/CCW configurable via programming tool or cable
Clock frequency	2 MHz <sup>2)</sup>

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

<sup>2)</sup> Minimum, LOW level (Clock +): 500 ns.

Set (electronic adjustment)	H-active (L = 0 - 3 V, H = 4,0 - Us V)
CW/CCW (counting sequence when turning)	L-active (L = 0 - 1 V, H = 2,0 - Us V)

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

<sup>2)</sup> Minimum, LOW level (Clock +): 500 ns.

### Electrical data

<b>Connection type</b>	Cable, 8-wire, universal, 1.5 m
<b>Supply voltage range</b>	4.5 V DC ... 32 V DC
<b>Power consumption</b>	≤ 1.5 W (without load)
<b>Reverse polarity protection</b>	✓
<b>MTTFd: mean time to dangerous failure</b>	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

<b>Mechanical design</b>	Blind hollow shaft
<b>Shaft diameter</b>	6 mm
<b>Shaft material</b>	Stainless steel
<b>Housing material</b>	Zinc
<b>Material, cable</b>	PUR
<b>Start up torque</b>	1 Ncm <sup>1)</sup>
<b>Operating torque</b>	< 1 Ncm <sup>1)</sup>
<b>Permissible shaft movement, axial static/dynamic</b>	± 0.3 mm, ± 0.1 mm
<b>Permissible shaft movement, radial static/dynamic</b>	± 0.3 mm, ± 0.1 mm
<b>Moment of inertia of the rotor</b>	15 gcm <sup>2</sup>
<b>Bearing lifetime</b>	2.0 x 10 <sup>9</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> For Advanced type encoders, the shaft seal must be inspected regularly.

### Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating</b>	IP66 / IP67, housing side (according to IEC 60529) <sup>1)</sup> IP66 / IP67, shaft side (according to IEC 60529) <sup>2)</sup>
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Operating temperature range</b>	-40 °C ... +100 °C
<b>Storage temperature range</b>	-40 °C ... +100 °C, without package
<b>Resistance to shocks</b>	100 g, 6 ms (according to EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

<sup>1)</sup> With mating connector fitted.

<sup>2)</sup> For Advanced type encoders, the shaft seal must be inspected regularly.

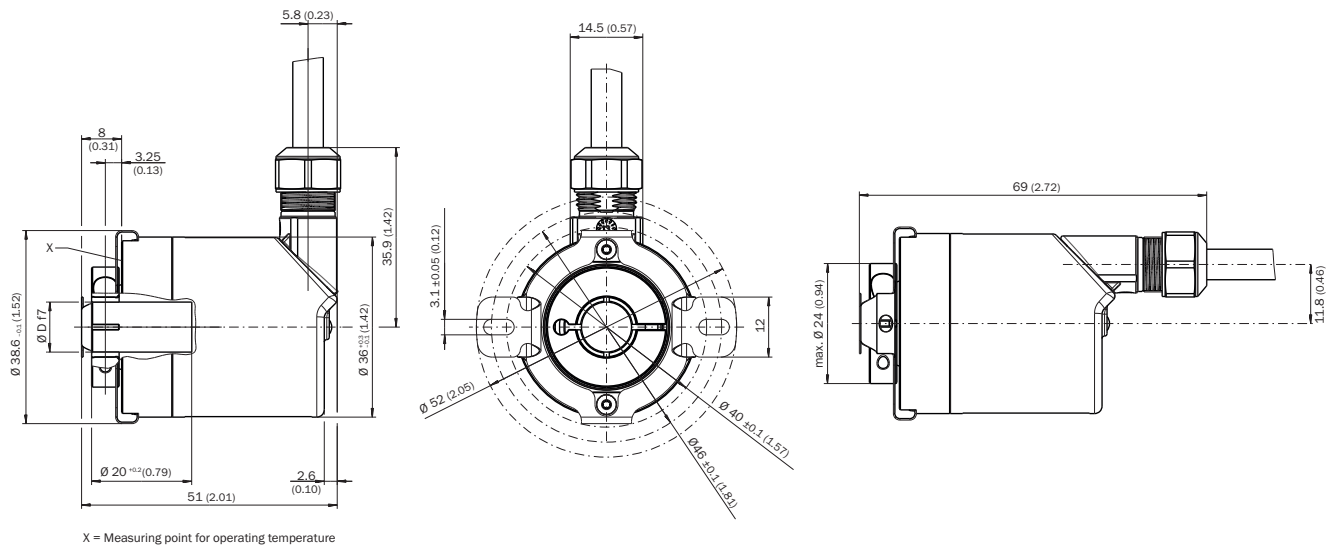
### Classifications

<b>ECl@ss 5.0</b>	27270502
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<b>ECl@ss 5.1.4</b>	27270502
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270502
<b>ECl@ss 8.0</b>	27270502
<b>ECl@ss 8.1</b>	27270502
<b>ECl@ss 9.0</b>	27270502
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

### Dimensional drawing (Dimensions in mm (inch))

Blind hollow shaft, cable outlet



## PIN assignment





PIN, 8-pin, M12 male connector	Wire colors, cable outlet	Signal	Explanation
1	Brown	Data-	Interface signals
2	White	Data+	Interface signals
3	Black	V/R	Sequence for direction of rotation
4	Pink	SET	Electronic adjustment
5	Yellow	Clock+	Interface signals
6	Lilac	Clock-	Interface signals
7	Blue	GND	Ground connection
8	Red	+US	Operating voltage
Screen	Screen	Screen	Screen connected to housing on encoder side. Connected to ground on control side.






V/R Forwards / Reverse: This input programs the counting direction for the encoder. When it is not connected, this input is set to HIGH. If the encoder shaft is rotated clockwise (to the right) as viewed when facing the shaft, it counts in ascending order. If it should count in ascending order when the shaft is rotated counterclockwise (to the left), then this connection must be permanently set to LOW level (GND).

SET This input is for electronic zeroing. If the SET cable is set to US for more than 250 ms, the mechanical position corresponds to the 0 value, i. e., the predetermined SET value.

## Recommended accessories

Other models and accessories → [www.sick.com/AHS\\_AHM36\\_SSI](http://www.sick.com/AHS_AHM36_SSI)

	Brief description	Type	Part no.
<b>Flanges</b>			
	Stator coupling on hole circle 63 mm	BEF-DS08	2072206
<b>Plug connectors and cables</b>			
	Head A: cable Head B: Flying leads Cable: SSI, PUR, halogen-free, shielded	LTG-2308-MWENC	6027529
	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, PUR, halogen-free, shielded	LTG-2612-MW	6028516
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868

	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869
	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	DSL-2D08-G0M5AC2	2048439
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, SSI, shielded	DOS-1208-GA01	6045001
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, shielded	STE-1208-GA01	6044892
<b>Programming and configuration tools</b>			
	USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders	PGT-08-S	1036616
	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

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)