



AHM36I-S7AC008x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
AHM36I-S7AC008x12	1099369

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⁾
--	--

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)	256 (8 bit)
Number of revolutions	4,096 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	8 bit x 12 bit (256 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⁾
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	Male connector, M12, 8-pin, universal
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	3/8"
Shaft length	12 mm
Characteristics of the shaft	With flat
Weight	0.2 kg ¹⁾
Shaft material	Stainless steel 1,4305
Flange material	Stainless steel 1,4305
Housing material	Stainless steel 1,4305
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 ²⁾
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.

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	IP67 (IEC 60529) IP69K (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) ¹⁾

¹⁾ For side-mounted encoders (horizontal encoder shaft, vertical stator coupling), additional damping measures may be required in some cases as resonances can arise. Furthermore, the cable must be fastened with the shortest possible distance to the encoder.

Classifications

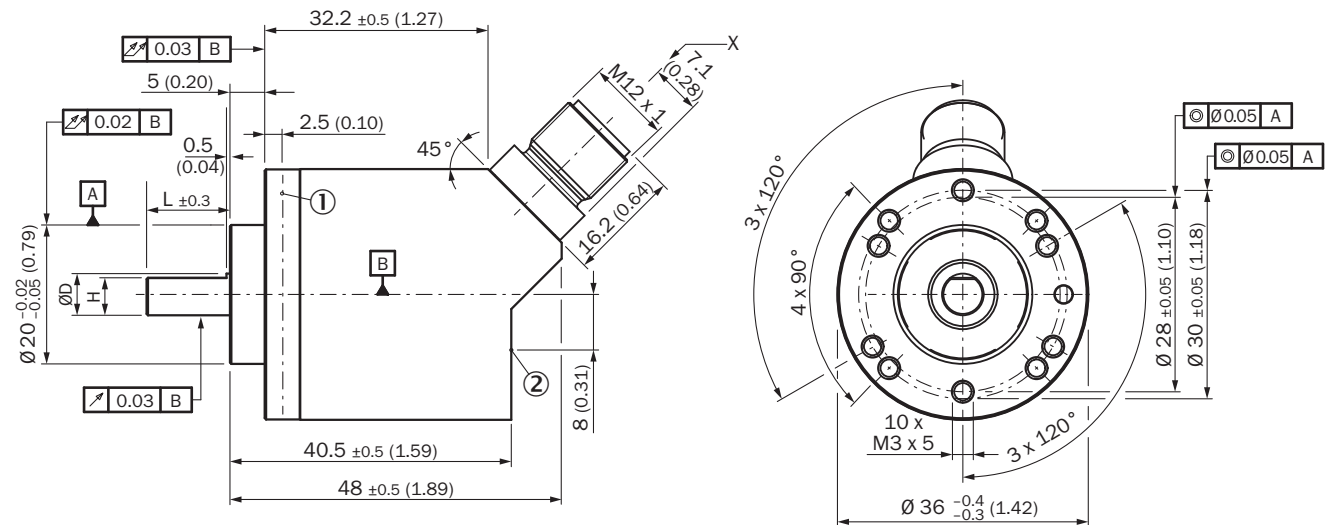
ECLASS 5.0	27270502
-------------------	----------

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)	✓

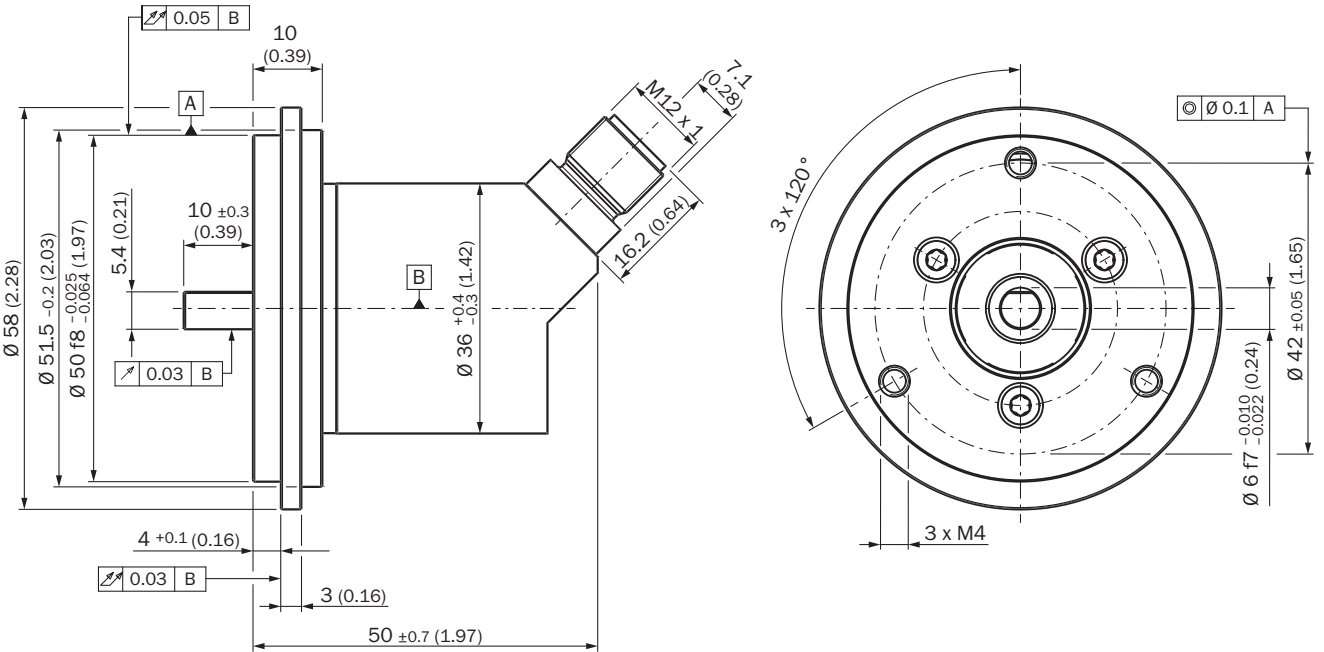
Dimensional drawing Solid shaft, face mount flange, male connector



- 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

Attachment specifications Solid shaft, face mount flange with flange adapter, centering collar D20 on D50 (BEF-FA-020-050-I, 2103985)



order example for 6 mm shaft diameter: AHx36I-S3xx0xxxxx + BEF-FA-020-050-I (adapter is not pre-assembled)

Technical drawing of a mechanical part, showing front, side, and top views with dimensions and tolerances.

Front View (Left):

- Overall width: 48 ± 0.7 (1.89)
- Overall height: $\varnothing 20 \pm 0.02$ (0.79)
- Top flange height: 12 ± 0.3 (0.47)
- Top flange thickness: 5.4 (0.21)
- Top flange inner diameter: $\varnothing 6 \sqrt{7} \begin{smallmatrix} -0.010 \\ -0.022 \end{smallmatrix}$ (0.24)
- Top flange surface texture: 0.03 B
- Top flange feature: 3 (0.16)
- Top flange feature: 11.5 (0.45)
- Top flange feature: 16.2 (0.64)
- Top flange feature: $M12 \times 1$ (0.28)
- Top flange feature: 7.1
- Top flange feature: $\varnothing 36 \begin{smallmatrix} +0.4 \\ -0.3 \end{smallmatrix}$ (1.42)
- Top flange feature: $3 \times M3$

Side View (Right):

- Overall width: 48 ± 0.7 (1.89)
- Overall height: $\varnothing 20 \pm 0.02$ (0.79)
- Top flange height: 12 ± 0.3 (0.47)
- Top flange thickness: 5.4 (0.21)
- Top flange inner diameter: $\varnothing 6 \sqrt{7} \begin{smallmatrix} -0.010 \\ -0.022 \end{smallmatrix}$ (0.24)
- Top flange surface texture: 0.03 B
- Top flange feature: 3 (0.16)
- Top flange feature: 11.5 (0.45)
- Top flange feature: 16.2 (0.64)
- Top flange feature: $M12 \times 1$ (0.28)
- Top flange feature: 7.1
- Top flange feature: $\varnothing 36 \begin{smallmatrix} +0.4 \\ -0.3 \end{smallmatrix}$ (1.42)
- Top flange feature: $3 \times M3$

Top View (Bottom):

- Overall width: 48 ± 0.7 (1.89)
- Overall height: $\varnothing 20 \pm 0.02$ (0.79)
- Top flange height: 12 ± 0.3 (0.47)
- Top flange thickness: 5.4 (0.21)
- Top flange inner diameter: $\varnothing 6 \sqrt{7} \begin{smallmatrix} -0.010 \\ -0.022 \end{smallmatrix}$ (0.24)
- Top flange surface texture: 0.03 B
- Top flange feature: 3 (0.16)
- Top flange feature: 11.5 (0.45)
- Top flange feature: 16.2 (0.64)
- Top flange feature: $M12 \times 1$ (0.28)
- Top flange feature: 7.1
- Top flange feature: $\varnothing 36 \begin{smallmatrix} +0.4 \\ -0.3 \end{smallmatrix}$ (1.42)
- Top flange feature: $3 \times M3$

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, M12, 8-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: 0.25 mm² ... 0.5 mm² Application: Hygienic and washdown zones	YF12ES8-0050S5586A	2097334
	Connection type head A: Male connector, M12, 8-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.5 mm² Application: Hygienic and washdown zones	YM12ES8-0050S5586A	2097337
	Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 20 m, 8-wire, PUR, halogen-free Description: Incremental, shieldedSSI Connection systems: Flying leads	DOL-1208-G20MAC1	6032869
	Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 2 m, 8-wire, PUR, halogen-free Description: Incremental, shieldedSSI Connection systems: Flying leads	DOL-1208-G02MAC1	6032866
	Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 5 m, 8-wire, PUR, halogen-free Description: Incremental, shieldedSSI Connection systems: Flying leads	DOL-1208-G05MAC1	6032867
	Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 10 m, 8-wire, PUR, halogen-free Description: Incremental, shieldedSSI Connection systems: Flying leads	DOL-1208-G10MAC1	6032868

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