



AHM36A-S3JM014X12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
AHM36A-S3JM014X12	1120294

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

Detailed technical data

Safety-related parameters

MTTF_D (mean time to dangerous failure)	270 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)	16,384 (14 bit)
Number of revolutions	4,096 (12 bit)
Max. resolution (number of steps per revolution x number of revolutions)	14 bit x 12 bit (16,384 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	SAE J1939
Address setting	0 ... 253, (Address Claiming: 0...240) default: 224
Data transmission rate (baud rate)	125 kbit/s, 250 kbit/s, 500 kbit/s, default: 250 kbit/s
Initialization time	2 s ¹⁾
Process data	Position, speed, Temperature
Parameterising data	Number of steps per revolution Number of revolutions PRESET

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

²⁾ See accessories.

	Counting direction Sampling rate for speed calculation Unit for output of the speed value
Status information	CAN status via status LED
Bus termination	Via external terminator ²⁾

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

²⁾ See accessories.

Electronics

Connection type	Cable, 5-wire, universal, 5 m
Supply voltage	10 ... 30 V
Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓

Mechanics

Mechanical design	Solid shaft, face mount flange
Shaft diameter	6 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 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	IP66 (IEC 60529) IP67 (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	-40 °C ... +85 °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	✓
ECE test certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Technical drawing of a mechanical part, showing a side view and a top view.

Side View Dimensions:

- Top flange thickness: 5 (0.20)
- Top flange outer diameter: $\varnothing 12$ (0.47)
- Top flange inner diameter: $\varnothing 6.1$ (0.24)
- Top flange hole diameter: $\varnothing 2.5$ (0.10)
- Top flange hole position: (2.5 (0.10))
- Top flange hole angle: 45°
- Top flange hole depth: 3 (0.12)
- Top flange hole radius: R 8 (0.31)
- Top flange hole position: 8 (0.31)
- Top flange hole diameter: $\varnothing 12$ (0.47)
- Top flange hole inner diameter: $\varnothing 6.1$ (0.24)
- Top flange hole outer diameter: $\varnothing 2.5$ (0.10)
- Top flange hole angle: 45°
- Top flange hole depth: 3 (0.12)
- Top flange hole radius: R 8 (0.31)
- Top flange hole position: 8 (0.31)
- Top flange hole diameter: $\varnothing 12$ (0.47)
- Top flange hole inner diameter: $\varnothing 6.1$ (0.24)
- Top flange hole outer diameter: $\varnothing 2.5$ (0.10)
- Top flange hole angle: 45°
- Top flange hole depth: 3 (0.12)
- Top flange hole radius: R 8 (0.31)
- Top flange hole position: 8 (0.31)

Top View Dimensions:

- Base plate outer diameter: $\varnothing 20$ (0.79) ± 0.05
- Base plate inner diameter: $\varnothing 17$ (0.67) ± 0.02
- Base plate hole diameter: $\varnothing 12$ (0.47) ± 0.02
- Base plate hole position: (0.02 [B])
- Base plate hole angle: 45°
- Base plate hole depth: 3 (0.12)
- Base plate hole radius: R 8 (0.31)
- Base plate hole position: 8 (0.31)
- Base plate hole diameter: $\varnothing 12$ (0.47)
- Base plate hole inner diameter: $\varnothing 6.1$ (0.24)
- Base plate hole outer diameter: $\varnothing 2.5$ (0.10)
- Base plate hole angle: 45°
- Base plate hole depth: 3 (0.12)
- Base plate hole radius: R 8 (0.31)
- Base plate hole position: 8 (0.31)

② measuring point for vibrations

Type	Shaft diameter Ø 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

① Measuring point for operating temperature

Technical drawing of the 6000 series ball bearing unit, showing three views: front, top, and side. The drawing includes dimensions in millimeters (mm) and inches (in).

Front View Dimensions:

- Top flange width: $12 + 0.3$ (0.47)
- Inner diameter: 11.5 (0.45)
- Flange thickness: 5.4 (0.21)
- Shaft diameter: $30 + 0.05$ (1.18)
- Bearing outer diameter: 12×1
- Housing width: 34.2 (1.35)
- Inner diameter: 36.53 (1.42)
- Flange thickness: 3 (0.12)
- Flange width: 2.6 (0.1)

Top View Dimensions:

- Outer diameter: $60 + 0.18$ (2.36)
- Inner diameter: $30 + 0.05$ (1.18)
- Mounting hole diameter: 3.6 (0.14)
- Number of mounting holes: $3 \times M3$

Side View Dimensions:

- Overall length: 60 (2.36)
- Bearing outer diameter: 12×1

Table of Dimensions:

Symbol	Value	Unit
$\phi 67^{+0.022}_{-0.021}$	67	mm
$12 + 0.3$	12	mm
11.5	11.5	mm
5.4	5.4	mm
$30 + 0.05$	30	mm
12×1	12	mm
34.2	34.2	mm
36.53	36.53	mm
3	3	mm
2.6	2.6	mm
$60 + 0.18$	60	mm
3.6	3.6	mm

Material List:

Material	Quantity	Unit
0.03 B	3	mm
0.03 B	3	mm
0.03 B	3	mm

① Measuring point for operating temperature

[illegible]

① Measuring point for operating temperature


Timing diagram showing the relationship between the RD, BU, BK, PK, and WH signals and the CAN bus signals (VDC, GND/CAN, CAN high, CAN low, CAN shield).

PIN	Signal	Wire colors (cable connection)	Function
1	CAN Shield	White	Shielding
2	VDC	Red	Supply voltageEncoder10 V DC ... 30 V DC
3	GND/CAN GND	Blue	0 V (GND)







PIN	Signal	Wire colors (cable connection)	Function
4	CAN high	Black	CAN signal
5	CAN low	Pink	CAN signal
Housing	-	-	Shielding

Recommended accessories

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

	Brief description	Type	part no.
programming devices			
	<ul style="list-style-type: none">• Product segment: Programming devices• Product family: PGT-12 Pro• Description: Hand-held programming device for the programmable SICK AHS/AHM36 CANopen encoders, TMS/TMM61 CANopen inclination sensors, TMS/TMM88 CANopen, TMS/TMM88 Analog, and wire draw encoders with AHS/AHM36 CANopen. Compact dimensions, low weight, and intuitive operation.• Items supplied: 1 x PGT-12-Pro standalone programming tool, 4 x 1.5 V (AA) alkaline mignon batteries	PGT-12-Pro	1076313

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Flying leads Connection type head B: Flying leads Signal type: CANopen, DeviceNet™ Items supplied: By the meter Cable: 4-wire, twisted pair Description: CANopen, shielded, DeviceNet™ Note: Wire shield Al-Pt film, overall shield C-screen tin-plated 	LTG-2804-MW	6028328
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Signal type: CANopen, DeviceNet™ Description: CANopen, shielded DeviceNet™ Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	DOS-1205-GA	6027534
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 5-pin, straight, A-coded Signal type: CANopen, DeviceNet™ Description: CANopen, shielded DeviceNet™ Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	STE-1205-GA	6027533
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 5-pin, straight Signal type: CANopen Description: CANopen, unshielded 	CAN male connector	6021167
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, A-coded Connection type head B: Female connector, M12, 5-pin, A-coded Connection type head C: Male connector, M12, 5-pin, A-coded Description: Unshielded 	DSC-1205T000025KMC	6030664
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 2 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-020C1BXLEAX	2106283
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 5 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-050C1BXLEAX	2106284
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 10 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-100C1BXLEAX	2106286
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Male connector, M12, 5-pin, straight, A-coded Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 2 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-020C1B-M2A15	2106279
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Male connector, M12, 5-pin, straight, A-coded Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 5 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-050C1B-M2A15	2106281
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Male connector, M12, 5-pin, straight, A-coded Signal type: Fieldbus, CANopen, DeviceNet™ Cable: 10 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants 	YF2A15-100C1B-M2A15	2106282
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, A-coded Connection type head B: Female connector, M12, 5-pin, A-coded Connection type head C: Male connector, M12, 5-pin, A-coded Cable: 0.5 m, TPU 	Y-CAN cable	6083185

	Brief description	Type	part no.
	<ul style="list-style-type: none">• Description: Shielded• Connection type head A: Female connector, terminal box, 8-pin, straight• Connection type head B: Female connector, D-Sub, 9-pin, straight• Signal type: CANopen• Cable: 0.4 m• Description: CANopen, shielded	DDL-0D04-G0M5BC9	2083355
shaft adaptation			
	<ul style="list-style-type: none">• Product segment: Shaft adaptation• Product: Shaft couplings• Description: Bellows coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub	KUP-0606-B	5312981
	<ul style="list-style-type: none">• 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 +/- 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982
	<ul style="list-style-type: none">• 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
	<ul style="list-style-type: none">• 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 +/- 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
	<ul style="list-style-type: none">• 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 ± 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-0610-J	2127056

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