Product data sheet

AHM36I-SDCC014x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
AHM36I-SDCC014x12	1099336

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

Detailed technical data

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	CANopen
Data protocol	CANopen CiA DS-301 V4.02, CiA DSP-305 LSS, Encoder Profile: - CIA DS-406, V3.2. - Class C2
Address setting	0 ... 127, default: 5
Data transmission rate (baud rate)	20 kbit/s ... 1,000 kbit/s, default: 125 kbit/s
Initialization time	2 s [1]
Process data	Position, speed, Temperature
Parameterising data	Number of steps per revolution Number of revolutions PRESET Counting direction Sampling rate for speed calculation Unit for output of the speed value Round axis functionality Electronic cams(2 channels x 8 cams)
Available diagnostics data	Minimum and maximum temperature Maximumspeed Power-on counter Operatinghours counter power-on/motion

[1] Valid positional data can be read once this time has elapsed.
[2] See accessories.

	Counter of direction changes/number of movements cw/number of movements ccw Minimum andmaximum operating voltage
Status information	CANopen 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.

Electrical data

Connection type	Male connector, M12, 5-pin, universal
Supply voltage	10 ... 30 V
Power consumption	≤ 1.5 W (without load)
Reverse polarity protection	✓
MTTFd: 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.

Mechanical data

Mechanical design	Solid shaft, Servo flange
Shaft diameter	6 mm [1]
Shaft length	12 mm
Weight	0.2 kg [2]
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} [3]
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] For adapting to 1.25 m Ecoline wire draw mechanism; only available for multiturn variants.
[2] Based on devices with male connector.
[3] 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 ... +85 °C
Storage temperature range	–40 °C ... +100 °C, without package

[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.

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]

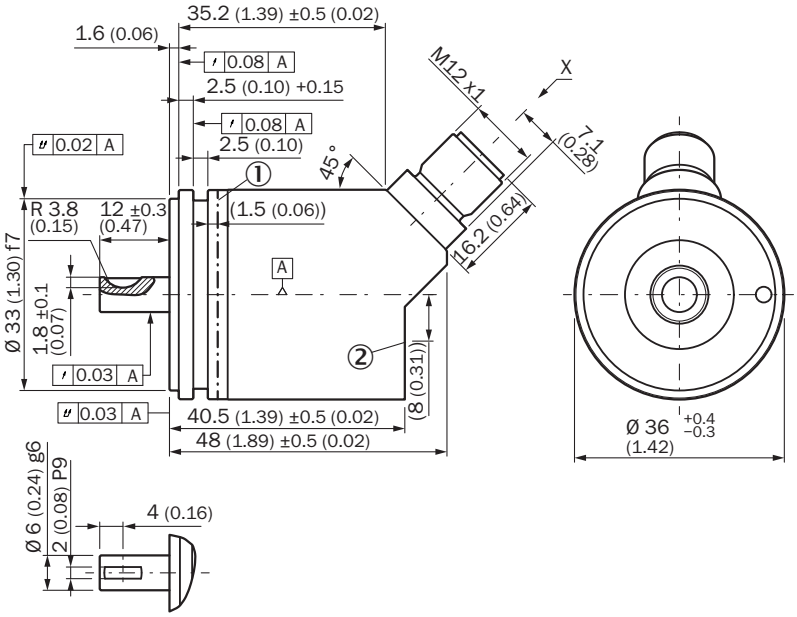
[1] For side-mounted encoders (horizontal encoder shaft, vertical stator coupling), additional damping measures may be required in some cases as resonances can arise. Furthermore, the cable must be fastened with the shortest possible distance to the encoder.

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

Dimensional drawing (Dimensions in mm (inch))

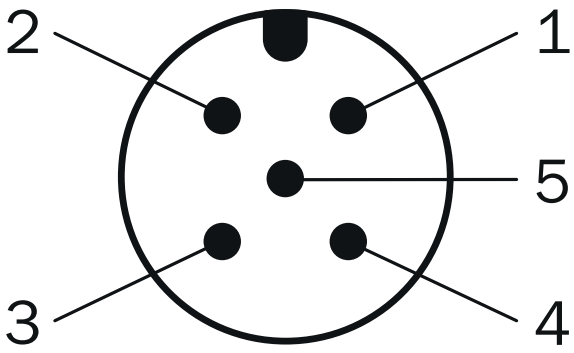
Solid shaft, servo flange, male connector, for adapting to 1.25 m Ecoline wire draw mechanism



Non-tolerated dimensions according to DIN-ISO 2768-mk

① Measuring point for operating temperature
② Measuring point for vibrations

PIN assignment



PIN	Signal	Wire colors (cable connection)	Function
1	CAN Shield	White	Screen
2	VDC	Red	Supply voltage Encoder 10 V DC ... 30 V DC
3	GND/CAN GND	Blue	0 V (GND)
4	CAN high	Black	CAN signal
5	CAN low	Pink	CAN signal
Housing	-	-	Screen

Recommended accessories

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

	Brief description	Type	Part no.
Other mounting accessories			
	Servo clamps, small, for servo flange (clamps, eccentric fastener), 3 pcs, without mounting material, without mounting hardware	BEF-WK-RESOL	2039082
Plug connectors and cables			
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Signal type:** Fieldbus • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Fieldbus, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YF2A55-020C1BXLEAX	2107874
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Signal type:** Fieldbus • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Fieldbus, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YG2A55-020C1BXLEAX	2107899

	Brief description	Type	Part no.
	• **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 • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Fieldbus, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YF2A55-020C1BM2A55	2107898
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Male connector, M12, 5-pin, straight, A-coded • **Signal type:** Fieldbus • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Fieldbus, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YG2A55-020C1BM2A55	2107901
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Description:** Shielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm² • **Application:** Hygienic and washdown zones	YF12ES5-0075S5586A	2097335
	• **Connection type head A:** Male connector, M12, 5-pin, straight, A-coded • **Description:** Shielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm² • **Application:** Hygienic and washdown zones	YM12ES5-0075S5586A	2097336
Others			
	• **Connection type head A:** Female connector, M12, 5-pin, straight • **Connection type head B:** Female connector, D-Sub, 9-pin, straight • **Signal type:** CANopen • **Description:** CANopen, shielded, Adapter cable for encoders and inclination sensors with CANopen interface and M12 • **Note:** Programming adapter cable for programming tool PGT-12-Pro	DDL-2D05-G0M5BC9	2083805

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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