



AHS36I-S1JC016384

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | part no. |
|-------------------|----------|
| AHS36I-S1JC016384 | 1117926 |

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) |
| 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 PRESET Counting direction Sampling rate for speed calculation Unit for output of the speed value |
| Status information | CAN status via status LED |

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

²⁾ See accessories.

| | |
|------------------------|---------------------------------------|
| Bus termination | Via external terminator ²⁾ |
|------------------------|---------------------------------------|

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

²⁾ See accessories.

Electronics

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

Mechanics

| | |
|---------------------------------------|---|
| Mechanical design | Solid shaft, Servo flange |
| Shaft diameter | 6 mm |
| 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 ... +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) ^{1) 2)} |

¹⁾ With additional mechanical cable mounting.

²⁾ 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 |

Certificates

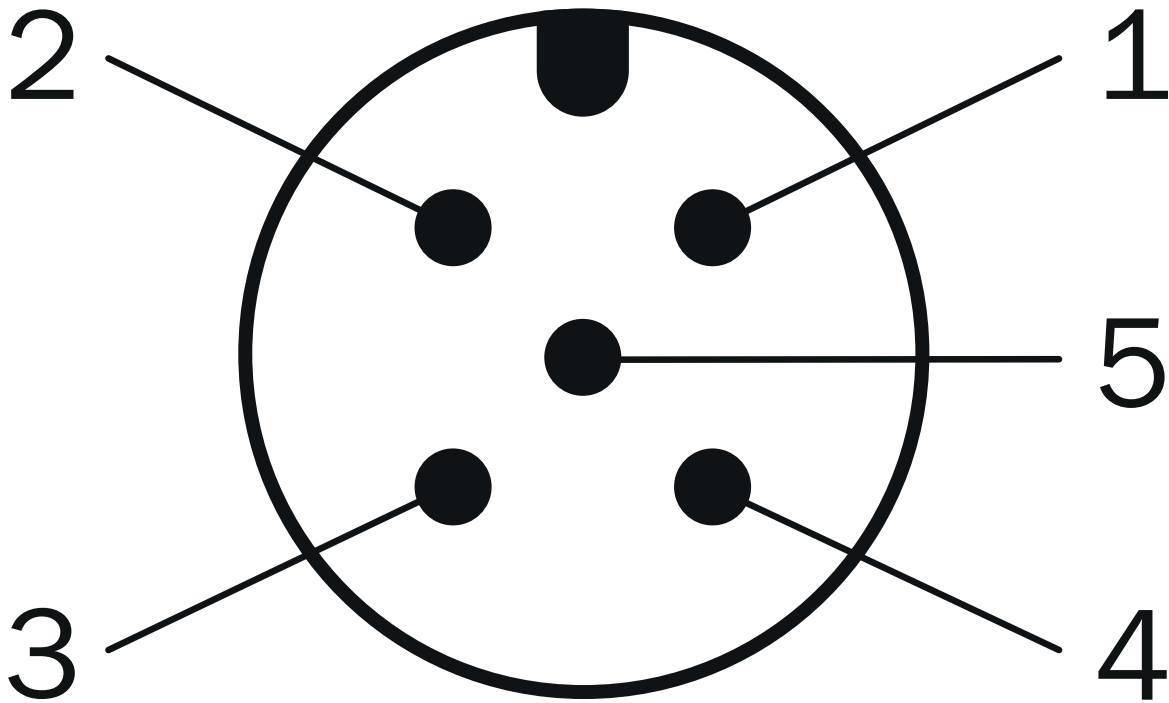
Dimensional drawing Solid shaft, servo flange, male connector



Dimensions in mm (inch)
Non-tolerated dimensions according to DIN-ISO 2768-mk
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 |

Anschlussbelegung



| 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) |
| 4 | CAN high | Black | CAN signal |

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

Recommended accessories

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

| | Brief description | Type | part no. |
|---|--|---------------------|----------|
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> 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 |
|  | <ul style="list-style-type: none"> 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 |
|  | <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, 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 Description: Shielded | Y-CAN cable | 6083185 |
|  | <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 | YF2A55-020C1B-M2A55 | 2107898 |
|  | <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 | YF2A55-020C1BXLAX | 2107874 |
|  | <ul style="list-style-type: none"> 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, CANopen, DeviceNet™ Cable: 2 m, 4-wire, PUR, halogen-free Description: Fieldbus, shielded, CANopen, DeviceNet™ Application: Drag chain operation, Zones with oils and lubricants | YG2A55-020C1B-M2A55 | 2107901 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, angled, 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 | YG2A55-020C1BXLAX | 2107899 |
|  | <ul style="list-style-type: none"> 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 Note: Programming adapter cable for programming tool PGT-12-Pro | DDL-2D05-G0M5BC9 | 2083805 |

| | 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 |
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Servo clamps, small, for servo flange (clamps, eccentric fastener), 3 pcs, without mounting material Items supplied: Without mounting hardware | BEF-WK-RESOL | 2039082 |
| 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 $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, 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: Double-loop coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial ± 2.5 mm, axial ± 3 mm, angular $\pm 10^\circ$; max. speed 3,000 rpm, -30°C to $+80^\circ\text{C}$, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange | KUP-0606-D | 5340152 |
|  | <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 $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, 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 $\pm 2.5^\circ$; max. speed 12,000 rpm, -10° to $+80^\circ\text{C}$, 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 / 6 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular $\pm 1.3^\circ$, max. speed 19,000 rpm, angle of twist max. 10°, -30°C to $+80^\circ\text{C}$, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane | KUP-0606-J | 2127057 |
|  | <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 $\pm 1.3^\circ$, max. speed 19,000 rpm, angle of twist max. 10°, -30°C to $+80^\circ\text{C}$, 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.

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