



AHM36A-S3QM014x12

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|-------------------|----------|
| AHM36A-S3QM014x12 | 1101549 |

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 | IO-Link |
| Communication Interface detail | IO-Link V1.1 / COM3 (230,4 kBaud) |
| Initialization time | 2 s ¹⁾ |
| Cycle time | ≤ 3.2 ms |
| Smart Sensor | Efficient communication, Enhanced Sensing, diagnosis |
| Process data | Position, speed, electronic cams, limit values, linear position, linear speed, errors and warnings, switching signals on pin 2 |
| 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) Limit values Linear measuring length per 360° Pin 2 configuration |
| Available diagnostics data | Minimum and maximum temperature |

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

| | |
|---|--|
| | Maximum speed Power-on counter Operating hours counter power-on/motion Counter of direction changes/number of movements cw/number of movements ccw Minimum and maximum operating voltage Distance covered |
| Status information | Via status LED |
| Switching input/Switching output | ✓ |
| Pin 2 input frequency | ≤ 100 Hz |
| Pin 2 output frequency | ≤ 100 Hz |

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

Electrical data

| | |
|--|--|
| Connection type | Cable, 4-wire, universal, 5 m |
| Supply voltage | 18 ... 30 V |
| Power consumption | ≤ 1.5 W |
| Reverse polarity protection | ✓ |
| MTTFd: mean time to dangerous failure | 240 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, face mount flange |
| Shaft diameter | 6 mm |
| Shaft length | 12 mm |
| Weight | 0.12 kg ¹⁾ |
| Shaft material | Stainless steel |
| Flange material | Aluminum |
| Housing material | Zinc |
| 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 |
| 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.

Ambient data

| | |
|--------------------------------------|--|
| EMC | According to EN 61000-6-2, EN 61000-6-3 and EN 61131-9 |
| 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 |

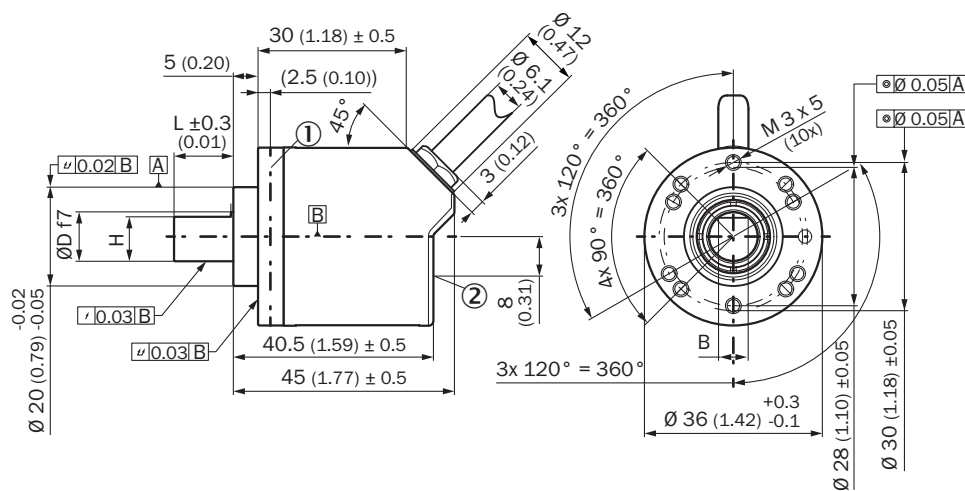
| | |
|--------------------------------|---|
| Resistance to shocks | 100 g, 6 ms (EN 60068-2-27) |
| Resistance to vibration | 20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6) |

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 |

Dimensional drawing (Dimensions in mm (inch))

Solid shaft, face mount flange, cable



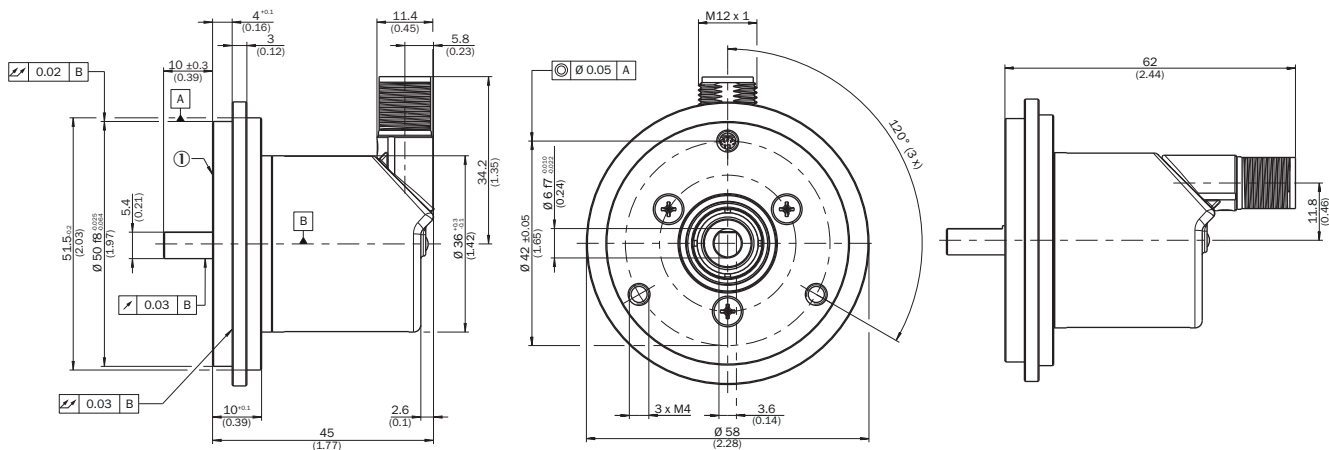
- ① Measuring point for operating temperature
- ② Measuring point for vibrations

| Type | Shaft diameter Ø D f7 | B | H |
|--------------------------------------|--------------------------|--------|--------|
| AHx36x-S1xxxxxxx AHx36x-S3xxxxxxx | 6 mm | 3,6 mm | 5,4 mm |
| AHx36x-S9xxxxxxx AHx36x-S5xxxxxxx | 8 mm | 3,9 mm | 7,5 mm |

| Type | Shaft diameter Ø D f7 | B | H |
|--|--------------------------|---------|--------|
| AHx36x-S2xxxxxxx AHx36x-S4xxxxxxx AHx36x-SCxxxxxxx | 10 mm | 6 mm | 9 mm |
| AHx36x-SAxxxxxxx AHx36x-S8xxxxxxx | 1/4" | 3,85 mm | 5,7 mm |
| AHx36x-SBxxxxxxx AHx36x-S7xxxxxxx | 3/8" | 4,35 mm | 9 mm |

Attachment specifications

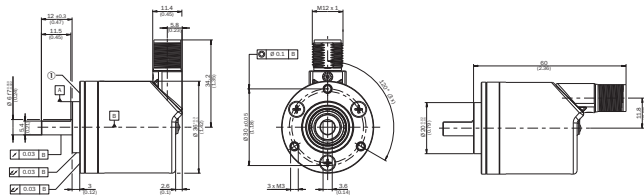
Solid shaft, face mount flange with flange adapter, centering collar D20 on D50 (BEF-FA-020-050, 2072297)



Order example for 6 mm shaft diameter: AHx36x-S3xx0xxxxx + BEF-FA-020-050 (adapter is not pre-assembled)

① Measuring point for operating temperature

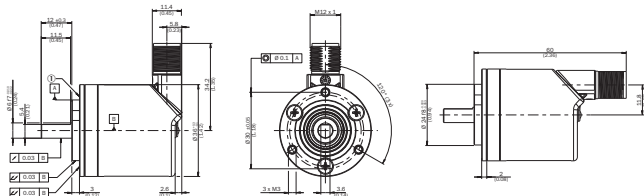
Solid shaft, face mount flange with flange adapter, centering collar D20 on D36, 2 mm high (BEF-FA-020-036-002, 2072296)



Order example for 6 mm shaft diameter: AHx36x-S3xx0xxxxx + BEF-FA-020-036-002 (adapter is not pre-assembled)

① Measuring point for operating temperature

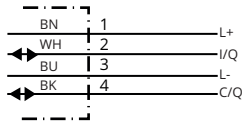
Solid shaft, face mount flange with flange adapter, centering collar D20 on D24 (BEF-FA-020-024, 2072294)



Order example for 6 mm shaft diameter: AHx36x-S3xx0xxxxx + BEF-FA-020-024 (adapter is not pre-assembled)

① Measuring point for operating temperature















PIN assignment











| PIN | Wire color | Signal | Function | | |
|-----|------------|--------|--------------------------------------|---|-----------------------------|
| | | | Basic | Advanced | Advanced Smart Task |
| 1 | Brown | L+ | Encoder supply voltage 18-30 V (+Us) | | |
| 2 | White | I/Q | Not connected - no function | Multifunctional pin (configurable as switching input or switching output) | |
| 3 | Blue | L- | Encoder supply voltage 0 V (GND) | | |
| 4 | Black | C/Q | IO-Link communication | | Switching output (SIO mode) |

Recommended accessories

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

| | Brief description | Type | Part no. |
|---|---|--------------------|----------|
| Other mounting accessories | | | |
| | O-ring for measuring wheels (circumference 200 mm) | BEF-OR-053-040 | 2064061 |
| | O-ring for measuring wheels (circumference 300 mm), 2x O-ring | BEF-OR-083-050 | 2064076 |
| Plug connectors and cables | | | |
|  |  | DOS-1204-G | 6007302 |
| Shaft adaptation | | | |
|  |  | KUP-0606-B | 5312981 |
| | | KUP-0610-B | 5312982 |
|  |  | KUP-0610-D | 5326697 |
|  |  | KUP-0610-F | 5312985 |
|  |  | KUP-0610-J | 2127056 |
| Others | | | |
|  |  | YF2A14-020UB3M2A14 | 2096000 |
|  |  | YF2A14-050UB3M2A14 | 2096001 |

| | Brief description | Type | Part no. |
|---|---|--------------------|----------|
|  |  | YF2A14-100UB3M2A14 | 2096002 |
|  |  | YF2A14-020UB3XLEAX | 2095607 |
|  |  | YF2A14-050UB3XLEAX | 2095608 |
|  |  | YF2A14-100UB3XLEAX | 2095609 |

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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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