



# AHM36I-S8QC014x12

AHS/AHM36 IO-Link Inox

**ABSOLUTE ENCODERS**

**SICK**  
Sensor Intelligence.



### Ordering information

| Type              | Part no. |
|-------------------|----------|
| AHM36I-S8QC014x12 | 1093768  |

Other models and accessories → [www.sick.com/AHS\\_AHM36\\_IO-Link\\_Inox](http://www.sick.com/AHS_AHM36_IO-Link_Inox)

Illustration may differ



### Detailed technical data

#### Performance

|   |                                 |
|---|---------------------------------|
| <b>Number of steps per revolution</b>                         | 16,384 (max.)                   |
| <b>Number of revolutions</b>                                  | 4,096 (max.)                    |
| <b>Max. resolution (singleturn, multiturn)</b>                | 16,384 (14 bit), 4,096 (12 bit) |
| <b>Error limits G</b>   | 0.35° (at 20 °C) <sup>1)</sup>  |
| <b>Repeatability standard deviation <math>\sigma_r</math></b> | 0.2° (at 20 °C) <sup>2)</sup>   |

<sup>1)</sup> 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.

<sup>2)</sup> In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

#### Interfaces

|                                       |  |
|---------------------------------------|--|
| <b>Communication interface</b>        | IO-Link  |
| <b>Communication Interface detail</b> | V1.1, COM3 (230,4 kBaud)   |
| <b>Process data</b>                   | Position, speed  |
| <b>Parameterising data</b>            | Number of steps per revolution<br>Number of revolutions<br>PRESET<br>Counting direction<br>Sampling rate for speed calculation<br>Unit for output of the speed value |
| <b>Status information</b>             | Via status LED   |
| <b>Initialization time</b>            | 2 s  |
| <b>Cycle time</b>                     | ≤ 3.2 ms   |

#### Electrical data

|  |                                       |
|--|---------------------------------------|
| <b>Connection type</b>                       | Male connector, M12, 4-pin, universal |
| <b>Supply voltage range</b>                  | 18 V ... 30 V                         |
| <b>Power consumption</b>                     | ≤ 1.5 W                               |
| <b>Reverse polarity protection</b>           | ✓                                     |
| <b>MTTFd: mean time to dangerous failure</b> | 145.6 years (EN ISO 13849-1)          |

## Mechanical data

|   |   |
|---|---|
| <b>Mechanical design</b>                  | Solid shaft, face mount flange                            |
| <b>Shaft diameter</b>                     | 1/4" x 12 mm  |
| <b>Shaft length</b>                       | 12 mm   |
| <b>Weight</b>                             | 0.2 kg, relates to devices with male connector connection |
| <b>Shaft material</b>                     | Stainless steel   |
| <b>Flange material</b>                    | Stainless steel   |
| <b>Material, stator coupling</b>          | Stainless steel   |
| <b>Housing material</b>                   | Stainless steel   |
| <b>Material, cable</b>                    | PUR   |
| <b>Start up torque</b>                    | ≤ 1 Ncm <sup>1)</sup>                                     |
| <b>Operating torque</b>                   | ≤ 1 Ncm <sup>1)</sup>                                     |
| <b>Permissible Load capacity of shaft</b> | 40 N / radial<br>20 N / axial                             |
| <b>Moment of inertia of the rotor</b>     | 2.5 gcm <sup>2</sup>                                      |
| <b>Bearing lifetime</b>                   | 3.6 x 10 <sup>8</sup> revolutions                         |
| <b>Angular acceleration</b>               | ≤ 500,000 rad/s <sup>2</sup>                              |
| <b>Operating speed</b>                    | ≤ 6,000 min <sup>-1</sup>                                 |

<sup>1)</sup> At 20 °C.

## Ambient data

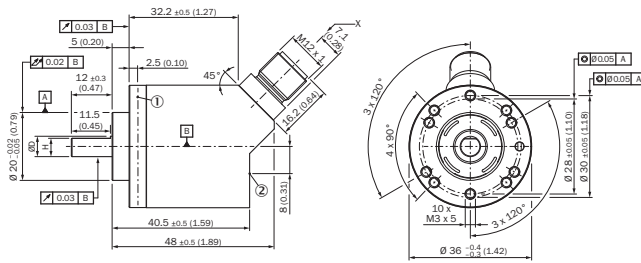
|                                      |  |
|--------------------------------------|--|
| <b>EMC</b>                           | According to EN 61000-6-2 and EN 61000-6-3           |
| <b>Enclosure rating</b>              | IP67 (IEC 60529)<br>IP69K (IEC 60529)                |
| <b>Permissible relative humidity</b> | 90 % (Condensation not permitted)                    |
| <b>Operating temperature range</b>   | -40 °C ... +85 °C                                    |
| <b>Storage temperature range</b>     | -40 °C ... +100 °C                                   |
| <b>Resistance to shocks</b>          | 100 g, 6 ms (according to EN 60068-2-27)             |
| <b>Resistance to vibration</b>       | 20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6) |

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27270502 |
| <b>ECl@ss 5.1.4</b>   | 27270502 |
| <b>ECl@ss 6.0</b>     | 27270590 |
| <b>ECl@ss 6.2</b>     | 27270590 |
| <b>ECl@ss 7.0</b>     | 27270502 |
| <b>ECl@ss 8.0</b>     | 27270502 |
| <b>ECl@ss 8.1</b>     | 27270502 |
| <b>ECl@ss 9.0</b>     | 27270502 |
| <b>ETIM 5.0</b>       | EC001486 |
| <b>ETIM 6.0</b>       | EC001486 |
| <b>UNSPSC 16.0901</b> | 41112113 |

### Dimensional drawing (Dimensions in mm (inch))

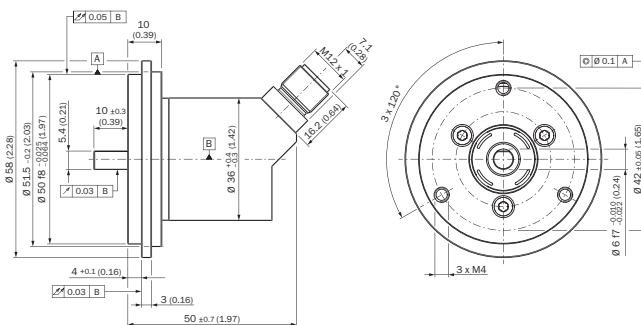
Solid shaft, face mount flange, connector outlet



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

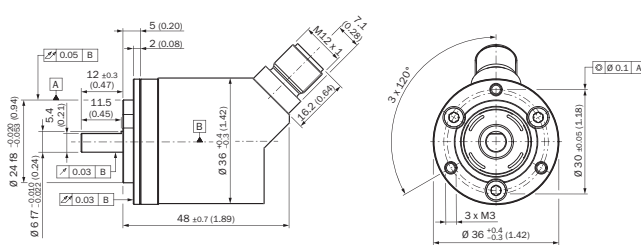
### Proposed fitting

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



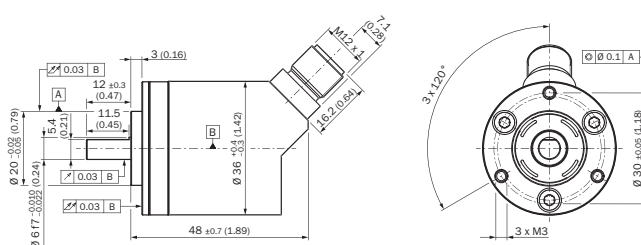
Order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-050-I (adapter is not pre-assembled)

Solid shaft, face mount flange with flange adapter, centering collar D20 on D24 (BEF-FA-020-024-I, 2103982)



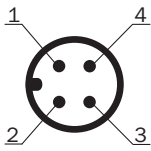
Order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-024-I (adapter is not pre-assembled)

Solid shaft, face mount flange with flange adapter, centering collar D20 on D36, 2 mm high (BEF-FA-020-036-2-I, 2103984)



Order example for 6 mm shaft diameter: AHx36I-S3xx0xxxx + BEF-FA-020-036-2-I (adapter is not pre-assembled)






PIN assignment









| PIN | Wire color | Signal | Function                             |
|-----|------------|--------|--------------------------------------|
| 1   | Brown      | L+     | Encoder supply voltage 18-30 V (+Us) |
| 2   | White      | I/Q    | Not connected - no function          |
| 3   | Blue       | L-     | Encoder supply voltage 0 V (GND)     |
| 4   | Black      | C/Q    | IO-Link communication                |

Recommended accessories

Other models and accessories → [www.sick.com/AHS\\_AHM36\\_IO-Link\\_Inox](http://www.sick.com/AHS_AHM36_IO-Link_Inox)

|   | Brief description   | Type            | Part no. |
|---|---|-----------------|----------|
| Plug connectors and cables  |   |                 |          |
|   | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DOL-1204-G02MNI | 6052613  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PP, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) | DOL-1204-G02MRN | 6058291  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DOL-1204-G05MNI | 6052615  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PP, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) | DOL-1204-G05MRN | 6058476  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PVC, unshielded, 10 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)  | DOL-1204-G10MNI | 6052617  |

|   | <b>Brief description</b>  | <b>Type</b>     | <b>Part no.</b> |
|---|---|-----------------|-----------------|
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: PP, unshielded, 10 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)                      | DOL-1204-G10MRN | 6058478         |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DOL-1204-W02MNI | 6052614         |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PP, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)                         | DOL-1204-W02MRN | 6058474         |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DOL-1204-W05MNI | 6052616         |
|   | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PP, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)                         | DOL-1204-W05MRN | 6058477         |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PVC, unshielded, 10 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)  | DOL-1204-W10MNI | 6052618         |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: PP, unshielded, 10 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)                        | DOL-1204-W10MRN | 6058479         |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DSL-1204-B02MNI | 6052633         |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PP, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) | DSL-1204-B02MRN | 6058502         |

|   | Brief description   | Type            | Part no. |
|---|---|-----------------|----------|
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DSL-1204-B05MNI | 6052634  |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PP, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)   | DSL-1204-B05MRN | 6058503  |
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DSL-1204-G02MNI | 6052630  |
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PP, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) | DSL-1204-G02MRN | 6058499  |
|   | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)   | DSL-1204-G05MNI | 6052631  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<br>Cable: PP, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) | DSL-1204-G05MRN | 6058500  |

## 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](http://www.sick.com)