AbN
automation

AHM36I-BBQZ000S03

AHS/AHM36

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
AHM36I-BBQZ000S03	1115924

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

Illustration may differ

Detailed technical data

Features

Special device	✓
Specialty	Cable, 4-wire, with male connector, M12, universal, 1.5 m Advanced firmware including Round Axis Functionality
Standard reference device	AHM36I-BBQK014x12, 1093774

Safety-related parameters

MTTF$_D$ (mean time to dangerous failure)	240 years (EN ISO 13849-1)

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

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

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 Maximumspeed Power-on counter Operatinghours counter power-on/motion Counter of direction changes/number of movements cw/number of movements ccw Minimum andmaximum operating voltage Distance covered
Status information	Via status LED
Switching input/Switching output	✓
Pin 2 input frequency	≤ 100 Hz
Output frequency pin 2	≤ 100 Hz

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

Electronics

Connection type	Special version
Connection type Detail	Cable, 4-wire, with male connector, M12, universal, 1.5 m
Supply voltage	18 ... 30 V
Power consumption	≤ 1.5 W
Reverse polarity protection	✓

Mechanics

Mechanical design	Blind hollow shaft
Shaft diameter	8 mm
Characteristics of the shaft	Front clamp
Weight	0.2 kg, Based on devices with male connector
Shaft material	Stainless steel 1,4305
Flange material	Stainless steel 1,4305
Material, stator coupling	Stainless steel 1,4305
Housing material	Stainless steel 1,4305
Material, cable	PUR
Start up torque	≤ 1 Ncm [1]
Operating torque	≤ 1 Ncm [1]
Permissible movement static	± 0.3 mm, ± 0.3 mm (radial, axial)
Permissible movement dynamic	± 0.1 mm (radial) ± 0.1 mm (axial)

[1] At 20 °C.

Operating speed	≤ 6,000 min⁻¹
Moment of inertia of the rotor	23 gcm²
Bearing lifetime	2.0 x 10^9 revolutions
Angular acceleration	≤ 500,000 rad/s²

[1] At 20 °C.

Ambient data

EMC	According to EN 61000-6-2, EN 61000-6-3 and EN 61131-9
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 packaging
Resistance to shocks	100 g, 6 ms (EN 60068-2-27) [1] [2]
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6) [1] [3]

[1] With additional mechanical cable mounting.

[2] The cable must also be fastened with the shortest possible distance to the encoder.

[3] 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

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓

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cTUVus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing
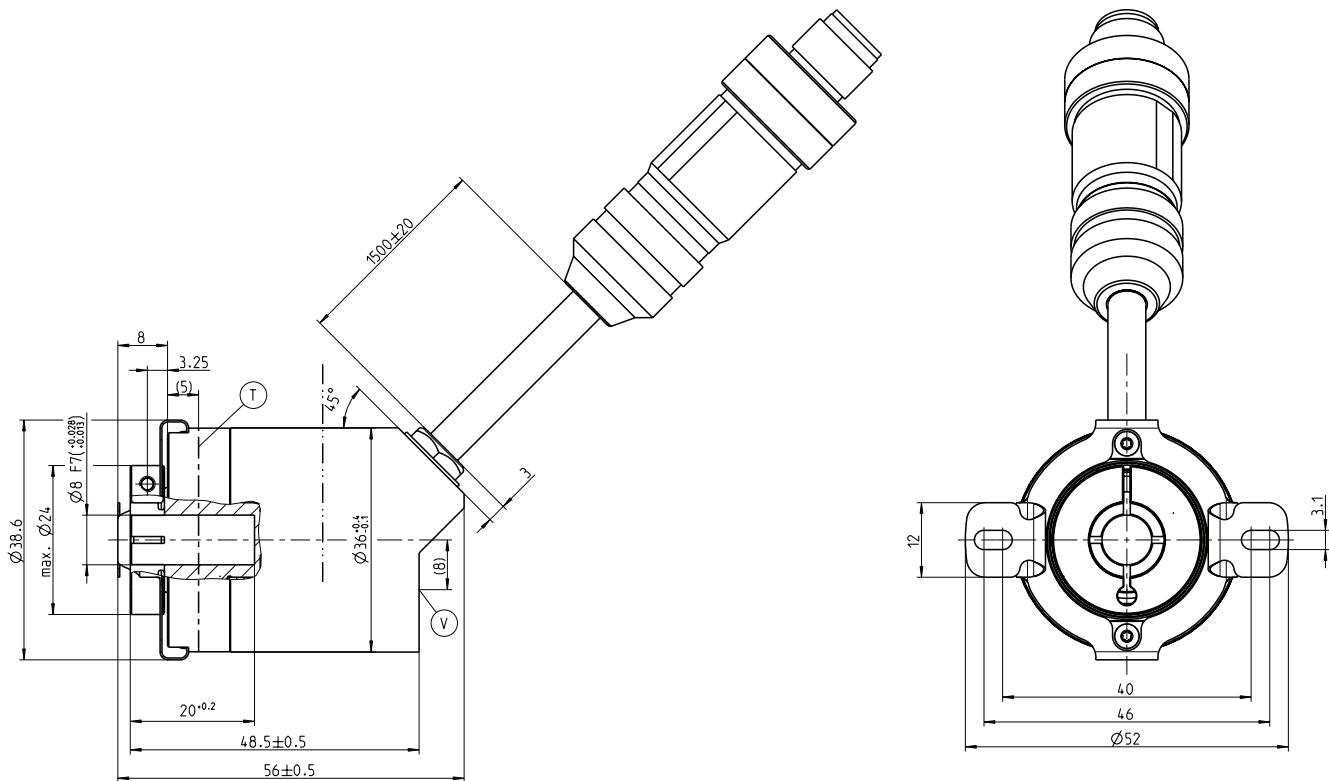
T	Meßpunkt Arbeitstemperatur (frei wählbar, jeweils umlaufend an der Flansch-Mantelfläche) measuring point working temperature (freely selectable, respectively circumferential at the flange coat surface)
V	Meßpunkt Vibration auf der Symmetrielinie der Gehäusestirnfläche measuring point vibration on the symetric axis of the housing end face

Dimensions in mm (inch)

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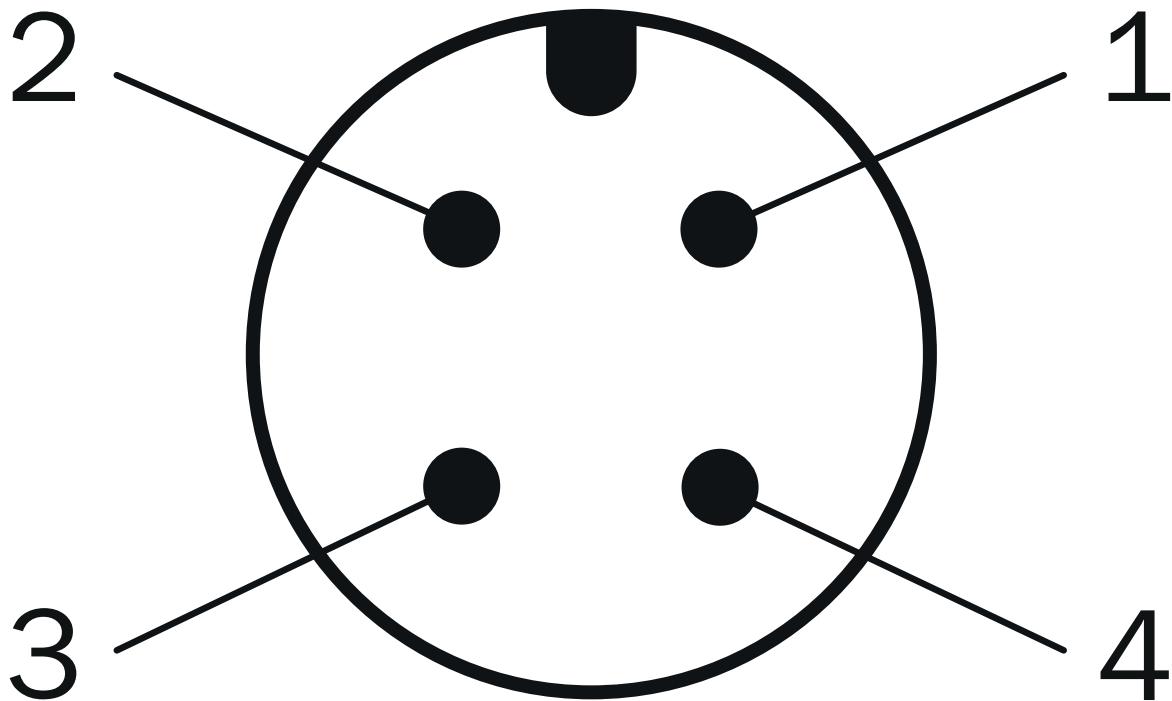
PIN	Wire color	Signal	Function		
–	–	–	Basic	Advanced	Advanced Smart Task
1	Brown	L+	Encoder supply voltage 18-30 V (+Us)		
2	White	I/Q	Not connected - no function	Multifunctional pin (configurable as switching input or switching output)	
3	Blue	L-	Encoder supply voltage 0 V (GND)		
4	Black	C/Q	IO-Link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

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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