



**Absolute encoders  
AHS/AHM36 CANopen, Rotary**

AHS36A-BACC016384



**Model Name** > [AHS36A-BACC016384](#)  
**Part No.** > [1066004](#)



*Illustration may differ*

#### At a glance

- Compact 36 mm absolute encoder with max. 26 bits (singleturn: 14 bits, multturn: 12 bits)
- Face mount flange, servo flange, blind hollow shaft
- Rotatable M12 connector or rotatable cable outlet
- CANopen interface with programmable configuration
- Diagnostic functions: temperature, operating time, etc. (depending on the type)
- Protection class up to IP 67 (depending on the type)
- Operating temperature: -40 °C to +85 °C (depending on the type)

#### Your benefits

- Simple, time-saving mechanical installation due to a rotatable connector or rotatable cable outlet, various mounting hole patterns, and many different shafts
- Simple network installation with various configuration options
- Intelligent diagnostic functions evaluate maintenance intervals for the entire system, thereby increasing system reliability
- Customizable Easy setup for various applications allowing binary, non-binary, and non-integer resolutions with the round axis functionality (advanced version)
- Reliable operation in harsh environments thanks to the rugged, reliable, fully magnetic sensor system
- Space-efficient and cost-effective design that is suitable for applications where space is tight
- High performance at a cost-efficient price



#### Performance

Max. number of steps per revolution:	16,384
Max. number of revolutions:	1
Resolution power:	16,384 x 1
Error limits:	± 0.35 ° (at 20°C)
Repeatability (Ta not constant):	± 0.2 ° (at 20°C)
Measuring step:	± 0.022 ° (360 °/number of steps)
Initialization time:	2 s <sup>1)</sup>

<sup>1)</sup> Valid positional data can be read once this time has elapsed

#### Mechanical data

Mechanical interface:	Blind hollow shaft
Shaft diameter:	6 mm

Mass:	0.12 kg (for an encoder with connector outlet)
Start up torque:	1 Ncm (+20 °C) <sup>1)</sup>
Operating torque:	< 1 Ncm (+20 °C) <sup>2)</sup>
Maximum operating speed::	6,000 /min <sup>3) 4)</sup>
Moment of inertia of the rotor:	15 gcm <sup>2</sup>
Bearing lifetime:	2.0 x 10 <sup>9</sup> revolutions
Max. angular acceleration:	500,000 rad/s <sup>2</sup>
Permissible movement axial static/dynamic:	± 0.3 mm, ± 0.1 mm
Permissible movement radial static/dynamic:	± 0.3 mm, ± 0.1 mm
Shaft material:	Stainless steel
Housing material:	Zinc

<sup>1) 2) 4) 3)</sup> Self warming of 5,5 K per 1000 revolutions/min when applying note working temperature range

## Electrical data

Power consumption:	Without load
Operating voltage range:	10 V ... 30 V
MTTFd: mean time to dangerous failure:	270 a (EN ISO 13849-1) <sup>1)</sup>
Connection type:	Connector M12, 5-pin, universal
Reverse polarity protection:	1
Power consumption max. without load:	1.5 W

<sup>1)</sup> 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.

## Interfaces

Electrical interface:	CANopen
Bus:	CANopen
Address setting:	0 ... 127
Data transmission rate (baud rate):	20 kbit/s ... 1,000 kbit/s, default: 125 kbit/s
Status information:	CANopen Status über Status-LED
Bus termination:	Via external termination resistance <sup>1)</sup>
Encoder profile:	CANopen CiA DS-301 V4.02, CiA DSP-305 LSS, Encoder Profile: - CiA DS-406, V3.2. - Class C2
Parameterising data:	Abtastrate für Geschwindigkeitsberechnung, Number of revolutions, Einheit für Ausgabe des Geschwindigkeitswerts, Elektronische Nocken (2 Kanäle x 8 Nocken), PRESET, Endless operating functionality (only Multiturn version), Number of steps per revolution, Counting direction
PDO data:	Speed, Position, Temperature
Available diagnostics data:	Betriebsstundenzähler Power-On/Motion, Maximale Geschwindigkeit, Minimale und maximale Betriebsspannung, Minimale und maximale Temperatur, Power-On Zähler, Zähler für Richtungsänderungen/Anzahl Bewegung cw/Anzahl Bewegungen ccw

<sup>1)</sup> See accessories

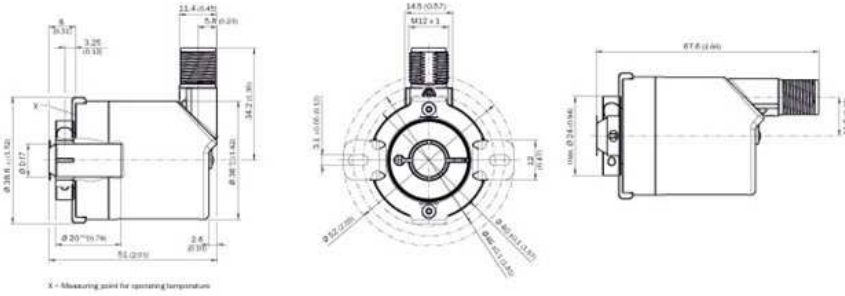
## Ambient data

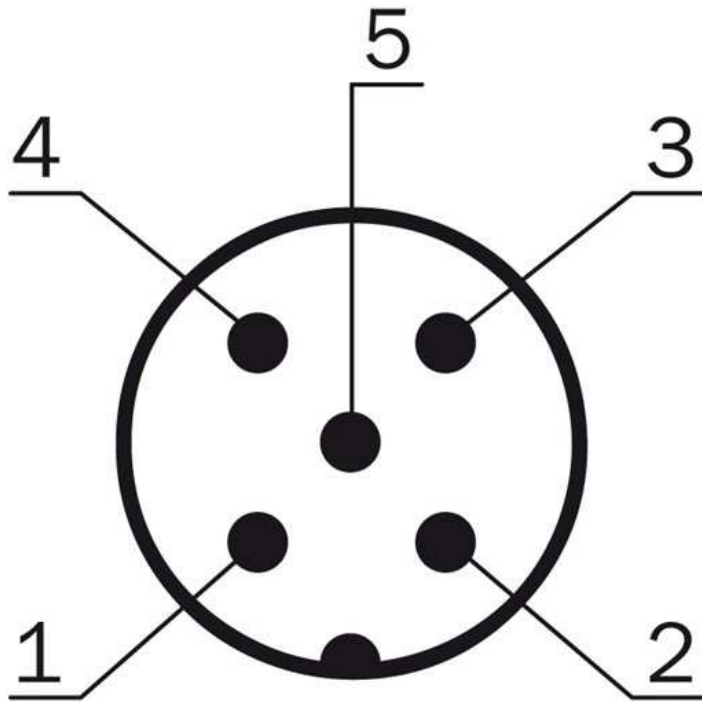
EMC:	(according to EN 61000-6-2 and EN 61000-6-3)
Enclosure rating::	IP 66/IP 67 (according to IEC 60529), housing side, IP 66/IP 67 (according to IEC 60529), shaft side <sup>1) 2)</sup>

Permissible relative humidity:	90 % (Condensation not permitted)
Working temperature range:	-40 °C ... +85 °C
Storage temperature range:	-40 °C ... +100 °C, without package
Resistance to shocks:	100 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

1) With mating connector fitted 2)

### Dimensional drawing





**PIN and wire allocation**

PIN	Signal	Wire color	Function
1	CAN shield	White	Screen
2	VDC	Red	Encoder supply voltage: 10 ... 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

**Australia**

Phone +61 3 9457 0600  
1800 33 48 02 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Česká republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail info@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederland**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)