

# DBS36E-BBAZ00S81

DBS36/50

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.

Illustration may differ

## Ordering information

Type	part no.
DBS36E-BBAZ00S81	1100690

Other models and accessories → [www.sick.com/DBS36\\_50](http://www.sick.com/DBS36_50)

## Detailed technical data

## Features

<b>Special device</b>	✓
<b>Specialty</b>	Cable, 8-wire, universal, 2 m with customized wire colour
<b>Standard reference device</b>	DBS36E-BBAL02000, 1070299

## Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	600 years (EN ISO 13849-1) <sup>1)</sup>
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<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.

## Performance

<b>Pulses per revolution</b>	1,000
<b>Measuring step</b>	90°, electric/pulses per revolution
<b>Measuring step deviation</b>	± 18° / pulses per revolution
<b>Error limits</b>	± 54° / pulses per revolution
<b>Duty cycle</b>	≤ 0.5 ± 5 %

## Interfaces

<b>Communication interface</b>	Incremental
<b>Communication Interface detail</b>	TTL / RS-422
<b>Number of signal channels</b>	6-channel
<b>Initialization time</b>	< 3 ms
<b>Output frequency</b>	≤ 300 kHz
<b>Load current</b>	≤ 30 mA
<b>Operating current</b>	≤ 50 mA (without load)

## Electronics

<b>Connection type</b>	Special version
<b>Connection type Detail</b>	Cable, 8-wire, universal, 2 m with customized wire colour
<b>Supply voltage</b>	4.5 ... 5.5 V
<b>Reference signal, number</b>	1

<sup>1)</sup> The short-circuit rating is only given if Us and GND are connected correctly.

<b>Reference signal, position</b>	90°, electric, logically gated with A and B
<b>Short-circuit protection of the outputs</b>	✓ <sup>1)</sup>

<sup>1)</sup> The short-circuit rating is only given if Us and GND are connected correctly.

## Mechanics

<b>Mechanical design</b>	Blind hollow shaft
<b>Shaft diameter</b>	8 mmFront clamp <sup>1)</sup>
<b>Weight</b>	+ 150 g (with connecting cable)
<b>Shaft material</b>	Stainless steel
<b>Flange material</b>	Aluminum
<b>Housing material</b>	Aluminum
<b>Material, cable</b>	PVC
<b>Start up torque</b>	+ 0.5 Ncm (+20 °C)
<b>Operating torque</b>	0.4 Ncm (+20 °C)
<b>Permissible movement static</b>	± 0.3 mm (radial) ± 0.5 mm (axial) <sup>2)</sup>
<b>Permissible movement dynamic</b>	± 0.1 mm (radial) ± 0.2 mm (axial) <sup>2)</sup>
<b>Operating speed</b>	6,000 min <sup>-1</sup> <sup>3)</sup>
<b>Maximum operating speed</b>	≤ 8,000 min <sup>-1</sup> <sup>4)</sup>
<b>Moment of inertia of the rotor</b>	0.8 gcm <sup>2</sup>
<b>Bearing lifetime</b>	2 x 10 <sup>9</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> Order collets for 5 mm, 6 mm and 1/4" mm separately as accessories.

<sup>2)</sup> Higher values are possible using limited bearing life.

<sup>3)</sup> Allow for self-heating of 4.7 K per 1,000 rpm when designing the operating temperature range.

<sup>4)</sup> No permanent operation. Decreasing signal quality.

## Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3 (class A)
<b>Enclosure rating</b>	IP65
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Operating temperature range</b>	-20 °C ... +85 °C, -35 °C ... +95 °C on request
<b>Storage temperature range</b>	-40 °C ... +100 °C, without package
<b>Resistance to shocks</b>	100 g, 6 ms (EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

## Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cRUus certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27270501
<b>ECLASS 5.1.4</b>	27270501
<b>ECLASS 6.0</b>	27270590
<b>ECLASS 6.2</b>	27270590
<b>ECLASS 7.0</b>	27270501
<b>ECLASS 8.0</b>	27270501
<b>ECLASS 8.1</b>	27270501
<b>ECLASS 9.0</b>	27270501
<b>ECLASS 10.0</b>	27270501
<b>ECLASS 11.0</b>	27270501
<b>ECLASS 12.0</b>	27270501
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>ETIM 8.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

## PIN assignment

Color of wires	Signal TTL, HTL	Explanation
Brown	A_	Signal line
Green	A	Signal line
Grey	B_	Signal line
White	B	Signal line
Orange	Z_	Signal line
Yellow	Z	Signal line
Black	GND	Ground connection of the encoder
Red	+U <sub>S</sub>	Supply voltage
Screen	Screen	Screen connected to encoder housing

## Recommended accessories

Other models and accessories → [www.sick.com/DBS36\\_50](http://www.sick.com/DBS36_50)

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 8-pin, straight, A-coded</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> CAT5, CAT5e</li> <li><b>Description:</b> Incremental, shielded</li> </ul>	STE-1208-GA01	6044892

	<b>Brief description</b>	<b>Type</b>	<b>part no.</b>
	<ul style="list-style-type: none"><li><b>Connection systems:</b> IDC quick connection</li><li><b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.34 mm<sup>2</sup></li></ul>		
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Male connector, M23, 12-pin, straight, A-coded</li><li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental</li><li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded SSI Incremental</li><li><b>Connection systems:</b> Solder connection</li></ul>	STE-2312-GX	6028548
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Male connector, M23, 12-pin, straight, A-coded</li><li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental</li><li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded SSI Incremental</li><li><b>Connection systems:</b> Solder connection</li></ul>	STE-2312-G01	2077273
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Flying leads</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> SSI, Incremental, HIPERFACE<sup>®</sup></li><li><b>Items supplied:</b> By the meter</li><li><b>Cable:</b> 8-wire, PUR, halogen-free</li><li><b>Description:</b> SSI, shielded, Incremental, HIPERFACE<sup>®</sup></li></ul>	LTG-2308-MWENC	6027529
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Flying leads</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> SSI, Incremental</li><li><b>Items supplied:</b> By the meter</li><li><b>Cable:</b> 11-wire, PUR</li><li><b>Description:</b> SSI, shielded, Incremental</li></ul>	LTG-2411-MW	6027530
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Flying leads</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> SSI, Incremental</li><li><b>Items supplied:</b> By the meter</li><li><b>Cable:</b> 12-wire, PUR, halogen-free</li><li><b>Description:</b> SSI, shielded, Incremental</li></ul>	LTG-2512-MW	6027531
	<ul style="list-style-type: none"><li><b>Connection type head A:</b> Flying leads</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> SSI, TTL, HTL, Incremental</li><li><b>Items supplied:</b> By the meter</li><li><b>Cable:</b> 12-wire, UV and saltwater-resistant, PUR, halogen-free</li><li><b>Description:</b> SSI, shielded, TTL, HTL, Incremental</li></ul>	LTG-2612-MW	6028516

## Mounting systems

	<ul style="list-style-type: none"><li><b>Product family:</b> Stator couplings</li><li><b>Description:</b> Two-sided stator coupling, screw hole diameter 42 to 46 mm, slot width 3.2 mm</li></ul>	BEF-DS-DBS36	2066301
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## 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)