



# DBS36E-BBAK01024

DBS36 Core

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
DBS36E-BBAK01024	1060147

Other models and accessories → [www.sick.com/DBS36\\_Core](http://www.sick.com/DBS36_Core)

### Detailed technical data

#### Performance

<b>Pulses per revolution</b>	1,024
<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)
<b>4.5 V... 5.5 V, TTL/RS-422</b>	
Load current	≤ 30 mA
Operating current	≤ 50 mA (without load)
<b>4.5 V ... 5.5 V, Open Collector</b>	
Load current	≤ 30 mA
Operating current	≤ 50 mA (without load)
<b>TTL/RS-422</b>	
Load current	≤ 30 mA
<b>HTL/Push pull</b>	
Load current	≤ 30 mA
<b>TTL/HTL</b>	
Load current	≤ 30 mA
<b>Open Collector</b>	
Load current	≤ 30 mA

## Electrical data

<b>Connection type</b>	Cable, 8-wire, universal, 1.5 m
<b>Supply voltage</b>	4.5 ... 5.5 V
<b>Reference signal, number</b>	1
<b>Reference signal, position</b>	90°, electric, logically gated with A and B
<b>Short-circuit protection of the outputs</b>	✓ <sup>1)</sup>
<b>MTTFd: mean time to dangerous failure</b>	600 years (EN ISO 13849-1) <sup>2)</sup>

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

<sup>2)</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.

## Mechanical data

<b>Mechanical design</b>	Blind hollow shaft
<b>Shaft diameter</b>	8 mm <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 shaft movement, axial static/dynamic</b>	± 0.5 mm / ± 0.2 mm <sup>2)</sup>
<b>Permissible shaft movement, radial static/dynamic</b>	± 0.3 mm / ± 0.1 mm <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> Collets for 5 mm and 6 mm and 1/4" as accessories, separate order item.

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

<sup>3)</sup> Self warming of 4.7 K per 1000 revolutions/min when applying note working 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 of the optical scanning 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)

### Classifications

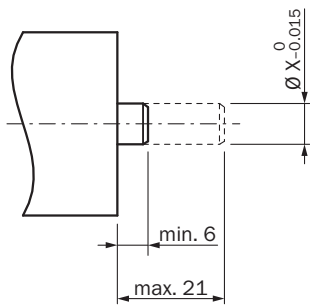
<b>ECl@ss 5.0</b>	27270501
<b>ECl@ss 5.1.4</b>	27270501
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270501
<b>ECl@ss 8.0</b>	27270501
<b>ECl@ss 8.1</b>	27270501
<b>ECl@ss 9.0</b>	27270501
<b>ECl@ss 10.0</b>	27270501
<b>ECl@ss 11.0</b>	27270501
<b>ETIM 5.0</b>	EC001486
<b>ETIM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

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

Blind hollow shaft, cable outlet

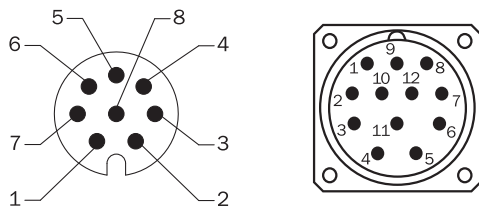


### Attachment specifications



	Encoder	
6 mm	DBS36E-BA	2056390 Premounted
5 mm	DBS36E-BB	2066991
6 mm		2056390
1/4"		On request
8 mm		Not required

### PIN assignment








View of M12 / M23 male device connector on cable / housing

### Recommended accessories

Other models and accessories → [www.sick.com/DBS36\\_Core](http://www.sick.com/DBS36_Core)

	Brief description	Type	Part no.
<b>Other mounting accessories</b>			
	Two-sided stator coupling, screw hole diameter 42 to 46 mm, slot width 3.2 mm	BEF-DS-DBS36	2066301
<b>Plug connectors and cables</b>			
	Head A: cable Head B: Flying leads Cable: SSI, Incremental, HIPERFACE®, PUR, halogen-free, shielded	LTG-2308-MWENC	6027529
	Head A: cable Head B: Flying leads Cable: SSI, PUR, shielded	LTG-2411-MW	6027530

	Brief description	Type	Part no.
	Head A: cable Head B: Flying leads Cable: SSI, PUR, halogen-free, shielded	LTG-2512-MW	6027531
	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, PUR, halogen-free, shielded	LTG-2612-MW	6028516
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, shielded	STE-1208-GA01	6044892
	Head A: male connector, M23, 12-pin, straight Head B: - Cable: HIPERFACE®, SSI, Incremental, shielded	STE-2312-G01	2077273
		STE-2312-GX	6028548

## 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)