

# DBS36E-S3EN00S35

DBS36 Core

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
DBS36E-S3EN00S35	1084394

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

### Detailed technical data

#### Features

<b>Special device</b>	✓
<b>Specialty</b>	Solid shaft, customized face mount flange Ø centering: 17.45 mm, 2 x M3 threads, 5 mm depth
<b>Standard reference device</b>	DBS36E-S3EN00400
<b>Additional information</b>	EMG part number 184855

#### Performance

<b>Pulses per revolution</b>	400
<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>	HTL / Push pull
<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>Power consumption</b>	≤ 0.5 W (without load)
<b>4.5 V... 5.5 V, TTL/RS-422</b>	
Load current	≤ 30 mA
<b>4.5 V ... 5.5 V, Open Collector</b>	
Load current	≤ 30 mA
<b>TTL/RS-422</b>	
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)
<b>HTL/Push pull</b>	
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)

<b>TTL/HTL</b>	Load current	≤ 30 mA
	Power consumption	≤ 0.5 W (without load)
<b>Open Collector</b>	Load current	≤ 30 mA
	Power consumption	≤ 0.5 W (without load)

### Electrical data

<b>Connection type</b>	Cable, 8-wire, universal, 10 m
<b>Supply voltage</b>	7 ... 30 V
<b>Reference signal, number</b>	1
<b>Reference signal, position</b>	90°, electric, logically gated with A and B
<b>Reverse polarity protection</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>	Solid shaft, face mount flange
<b>Shaft diameter</b>	6 mm
<b>Wavelength</b>	12 mm
<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 loading radial/axial</b>	40 N (radial) <sup>1)</sup> 20 N (axial)
<b>Operating speed</b>	6,000 min <sup>-1</sup> <sup>2)</sup>
<b>Maximum operating speed</b>	≤ 8,000 min <sup>-1</sup> <sup>3)</sup>
<b>Moment of inertia of the rotor</b>	0.6 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> Higher values are possible using limited bearing life.

<sup>2)</sup> Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

<sup>3)</sup> No permanent operation. Decreasing signal quality.

### Ambient data

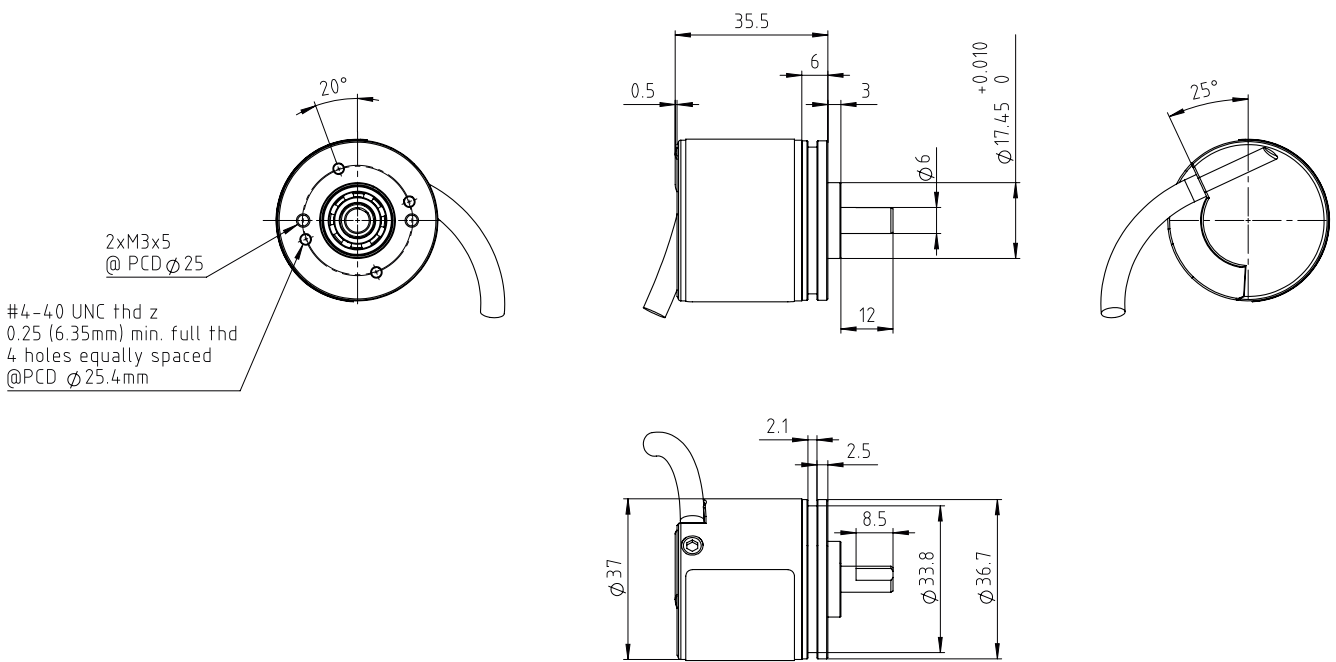
<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3 (class A)
<b>Enclosure rating</b>	IP65

<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))



PIN assignment

Wire color	Signal TTL/HTL 6-channel	Explanation
brown	A-	Signal wire
white	A	Signal wire
black	B-	Signal wire
pink	B	Signal wire
Yellow	Z-	Signal wire
purple	Z	Signal wire
blue	GND	Ground connection of the encoder
Red	+Us	Supply voltage
-	Not connected	Not connected
-	Not connected	Not connected
-	Not connected	Not connected
-	Not connected	Not connected
Shield	Shield	Shield (connected with housing on the encoder side)

## 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)