

ONLINE DATA SHEET
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Incremental encoders
DBS36 Core

DBS36E-BBAK02500



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Incremental encoders
DBS36 Core

Model Name > DBS36E-BBAK02500
Part No. > 1061235



Illustration may differ

At a glance

- Connection with universal cable outlet
- Versions with blind hollow shaft or face mount flange with solid shaft
- Face mount flange with 3 mounting hole patterns and servo groove
- Hollow shaft with universal stator coupling
- Compact diameter of 37 mm
- Electrical interfaces: TTL/RS-422, HTL/push pull and Open Collector NPN
- Available PPR: 10 to 2,500
- Temperature range: -20 °C ... +85 °C
- Enclosure rating: IP 65

Your benefits

- The universal cable outlet allows use in tight spaces and makes flexible cable routing possible
- Face mount flange with various mounting hole patterns provides flexibility when mounting in new or existing applications
- Face mount flange with servo groove makes mounting with servo clamps possible
- The DBS36 Core's universal stator coupling ensures easy device replacement without changing the application
- Shafts with metrich and inch dimension allow global use
- The high flexibility of the encoders' mechanical interface and the available accessories make it possible to use one design in many applications
- Permanent and safe operation due to a high enclosure rating, temperature resistance and a long bearing lifetime

CE

Performance

Error limits:	± 54 ° (/pulses per revolution)
Measuring step deviation:	± 18 °/impulses per relovution
Measuring step:	90 °/electronically/pulses
Initialization time:	< 3 ms
Pulses per revolution:	2,500
Duty cycle:	≤ 0.5 ± 5 %

Mechanical data

Mechanical interface:	Blind hollow shaft
Shaft diameter:	8 mm
Mass:	150 g (with connecting cable)
Start up torque:	0.5 Ncm (+20 °C)

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Operating torque:	0.4 Ncm (+20 °C)
Permissible movement axial static/dynamic:	± 0.5 mm, ± 0.2 mm
Permissible movement radial static/dynamic:	± 0.3 mm, ± 0.1 mm
Maximum operating speed:	8,000 U/min [1]
Moment of inertia of the rotor:	0.8 gcm²
Bearing lifetime:	2 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²
Shaft material:	Stainless steel
Operating speed:	6,000 /min [2]
Flange material:	Aluminum
Housing material:	Aluminum
Material, cable:	PVC

[1] No permanent operation. Decreasing signal quality. [2] Self-warming 4.7 K per 1,000 1/min

Electrical data

Electrical interface:	4.5 V ... 5.5 V, TTL/RS422
Connection type:	Cable, 8-wire, universal, 1.5 m
Operating power consumption (no load):	50 mA
Maximum output frequency:	300 kHz
Reference signal, number:	1
Reference signal, position:	90 °, electronically, gated with A and B
Load current max.:	30 mA
MTTFd: mean time to dangerous failure:	600 a (EN ISO 13849-1) [1]
Power consumption max. without load:	< 0.5 W (without load)
Short-circuit protection of the outputs:	1 [2]
Reverse polarity protection:	0

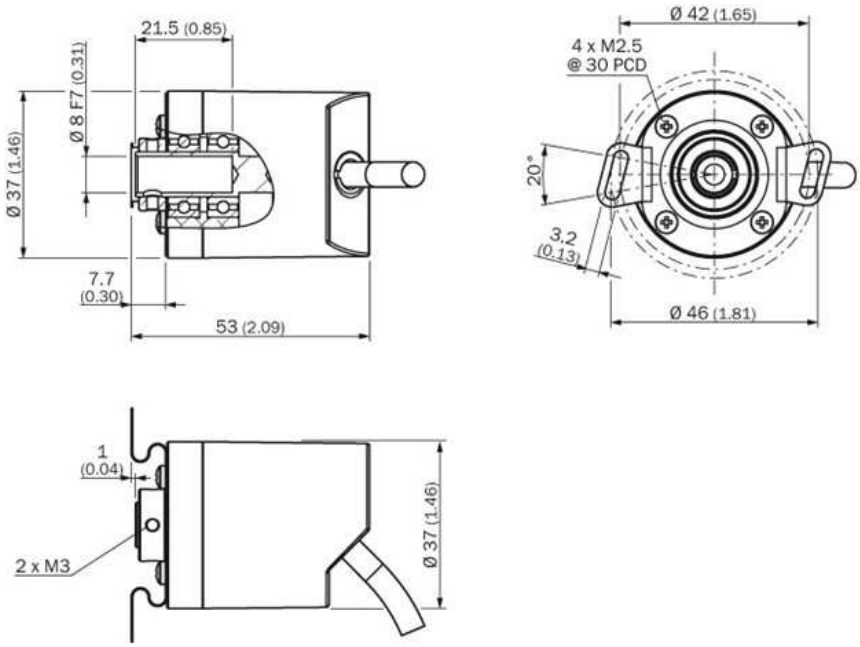
[1] This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532. [2] The short-circuit rating is only given if Us and GND are connected correctly.

Ambient data

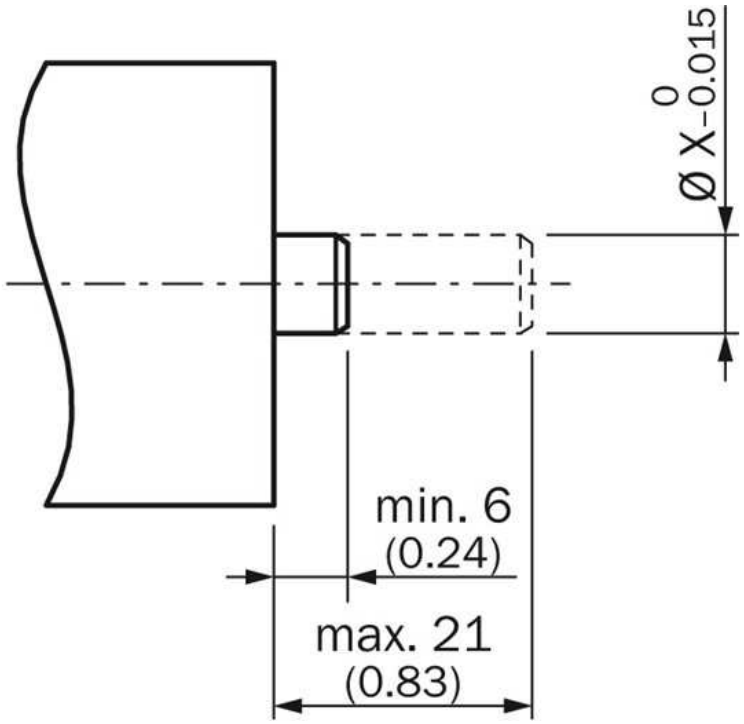
EMC:	(according to EN 61000-6-2 and EN 61000-6-4 (class A))
Working temperature range:	-20 °C ... +85 °C
Storage temperature range:	-40 °C ... +100 °C, without package
Resistance to shocks:	100 g (EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)
Enclosure rating:	IP 65
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)

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Dimensional drawing



Proposed fitting

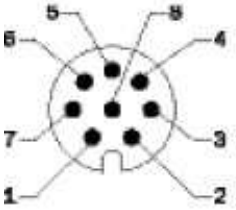


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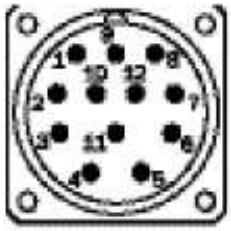
PIN assignment

8-core cable

View of M12 device connector on cable



View of M23 device connector on cable



PIN, 8-pole in M12	PIN, 12-pole in M23	Color of wires	Signal OC	Signal TTL, HTL	Explanation
1	6	Brown	Not connected	$\overline{A}$	Signal line
2	5	White	A	A	Signal line
3	1	Black	Not connected	$\overline{B}$	Signal line
4	8	Pink	B	B	Signal line
5	4	Yellow	Not connected	$\overline{Z}$	Signal line
6	3	Lilac	Z	Z	Signal line
7	10	Blue	GND	GND	Ground connection of the encoder
8	12	Red	$+U_s$	$+U_s$	Supply voltage
-	9	-	Not connected	Not connected	Not connected
-	2	-	Not connected	Not connected	Not connected
-	11	-	Not connected	Not connected	Not connected
-	7	-	Not connected	Not connected	Not connected
Screen	Screen	Screen	Screen	Screen	Screen connected to encoder housing

Type code

Mechanical design

- **B** Blind hollow shaft, Ø 8 mm

Electrical interface

- **A** 4,5 ... 5,5 V, TTL/RS-422, 6 Channel
- **C** 7 ... 30 V, TTL/RS-422, 6 Channel
- **E** 7 ... 30 V, HTL/push pull, 6 Channel
- **P** 4,5 ... 5,5 V, Open Collector, 3 Channel

Connection type

- **J** 8-core cable, universal 0,5 m
- **K** 8-core cable, universal 1,5 m
- **L** 8-core cable, universal 3 m
- **P** 8-core cable, universal 0,5 m, with M12 plug

Resolution

00100 ... 02500 Pulses per revolution possible. Pulses see "Pulses per revolution"

D	B	S	3	6	E	-	B								

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