



Incremental encoders DBS36 Core

DBS36E-S3AJ00360



Model Name > [DBS36E-S3AJ00360](#)
Part No. > [1061238](#)



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 metric 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



Performance

| | |
|---------------------------|---|
| Error limits: | $\pm 54^\circ$ (/pulses per revolution) |
| Measuring step deviation: | $\pm 18^\circ$ /impulses per revolution |
| Measuring step: | 90° /electronically/pulses |
| Initialization time: | < 3 ms |
| Pulses per revolution: | 100 |
| Duty cycle: | $\leq 0.5 \pm 5\%$ |

Mechanical data

| | |
|-----------------------|--------------------------------|
| Mechanical interface: | Solid shaft, Face mount flange |
| Shaft diameter: | 6 mm x 12 mm |
| Start up torque: | 0.5 Ncm (+20 °C) |
| Operating torque: | 0.4 Ncm (+20 °C) |

| | |
|---|---------------------------------|
| Maximum operating speed: | 8,000 U/min ¹⁾ |
| Moment of inertia of the rotor: | 0.6 gcm ² |
| Bearing lifetime: | 2 x 10 ⁹ revolutions |
| Max. angular acceleration: | 500,000 rad/s ² |
| Permissible shaft loading radial/axial: | 20 N (axial), 40 N (radial) |
| 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 3.3 K per 1,000 1/min

Electrical data

| | |
|--|--|
| Electrical interface: | 4.5 V ... 5.5 V, TTL/RS422 |
| Connection type: | Cable, 8-wire, universal, 0.5 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 |
| Operating voltage range: | 4.5 V ... 5.5 V |
| Load current max.: | 30 mA |
| MTTFd: mean time to dangerous failure: | 600 a (EN ISO 13849-1) ¹⁾ |
| Power consumption max. without load: | 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.

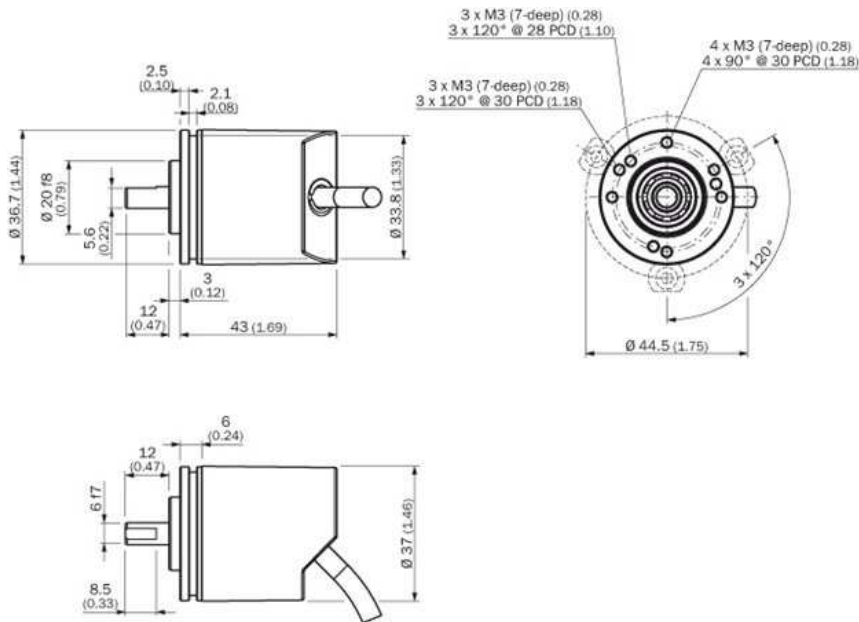
Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All

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) |

Dimensional drawing



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 | \bar{A} | Signal line |
| 2 | 5 | White | A | A | Signal line |
| 3 | 1 | Black | Not connected | \bar{B} | Signal line |
| 4 | 8 | Pink | B | B | Signal line |
| 5 | 4 | Yellow | Not connected | \bar{Z} | Signal line |
| 6 | 3 | Lilac | Z | Z | Signal line |
| 7 | 10 | Blue | GND | GND | Ground connection of the encoder |
| 8 | 12 | Red | +U _v | +U _v | 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 |

Mechanical design

3 face mount flange, solid shaft, Ø 6 mm, length 12 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

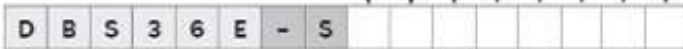
K 8-core cable, universal 1,5 m

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"



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