



DBS36E-BBAZ00S69

DBS36 Core

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
DBS36E-BBAZ00S69	1093020

Other models and accessories → www.sick.com/DBS36_Core

Detailed technical data

Features

Special device	✓
Specialty	Cable, 8-wire with male connector M12, universal, 0.1 m with customized pin assignment Operating temperature range -28 °C ... +85 °C
Standard reference device	DBS36E-BBAJ01024, 1060868

Performance

Pulses per revolution	1,024
Measuring step	90° electric/pulses per revolution
Measuring step deviation	± 18° / pulses per revolution
Error limits	± 54° / pulses per revolution
Duty cycle	≤ 0.5 ± 5 %

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / RS-422
Number of signal channels	6-channel
Initialization time	< 3 ms
Output frequency	≤ 300 kHz
Load current	≤ 30 mA
Operating current	≤ 50 mA (without load)
4.5 V... 5.5 V, TTL/RS-422	
Load current	≤ 30 mA
Operating current	≤ 50 mA (without load)
4.5 V ... 5.5 V, Open Collector	
Load current	≤ 30 mA
Operating current	≤ 50 mA (without load)
TTL/RS-422	
Load current	≤ 30 mA
HTL/Push pull	
Load current	≤ 30 mA
TTL/HTL	
Load current	≤ 30 mA

Open Collector	
Load current	$\leq 30 \text{ mA}$

Electrical data

Connection type	Cable, 8-wire, cable with male connector, M12, 8-pin, universal, 0.1 m, customized pin assignment
Supply voltage	4.5 ... 5.5 V
Reference signal, number	1
Reference signal, position	90°, electric, logically gated with A and B
Short-circuit protection of the outputs	✓ ¹⁾
MTTFd: mean time to dangerous failure	600 years (EN ISO 13849-1) ²⁾

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

²⁾ 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

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

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

²⁾ Higher values are possible using limited bearing life.

³⁾ Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

⁴⁾ No permanent operation. Decreasing signal quality.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 (class A)
Enclosure rating	IP65
Permissible relative humidity	90 % (condensation of the optical scanning not permitted)
Operating temperature range	-28 °C ... +85 °C, -35 °C ... +95 °C on request
Storage temperature range	-40 °C ... +100 °C, without package

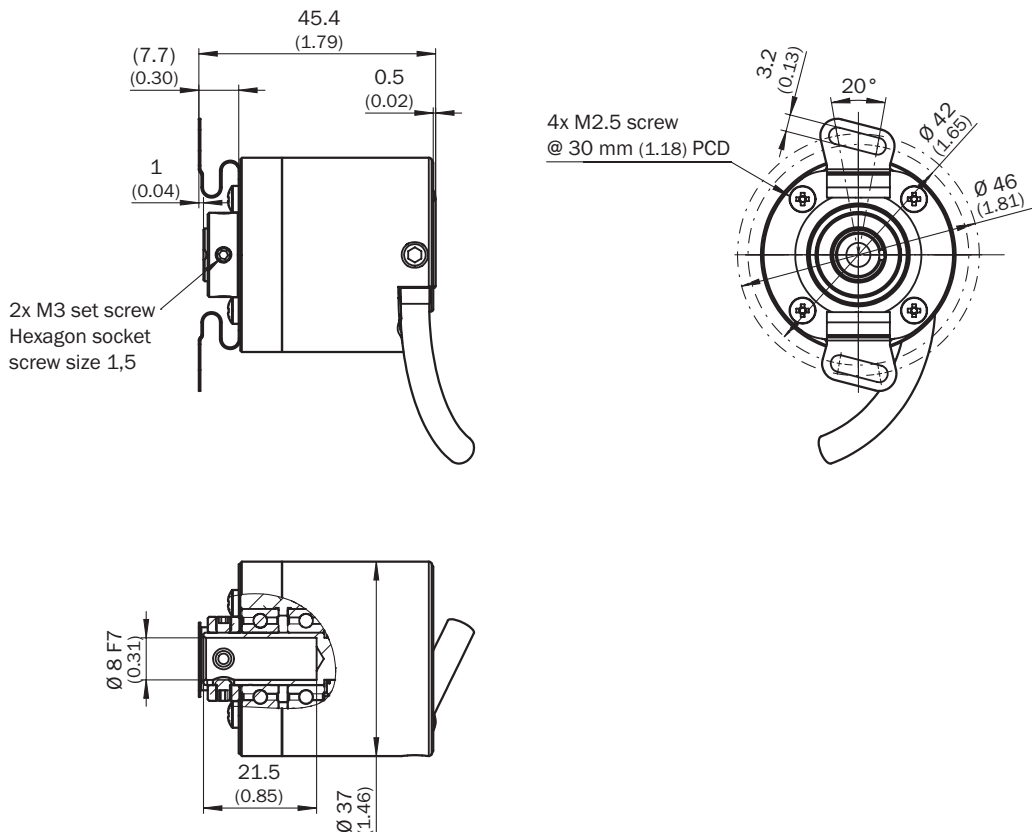
Resistance to shocks	100 g, 6 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

Classifications

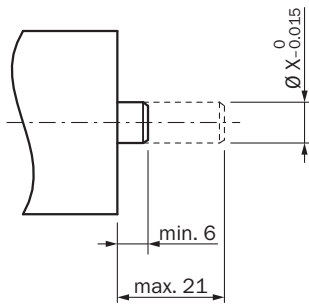
ECl@ss 5.0	27270501
ECl@ss 5.1.4	27270501
ECl@ss 6.0	27270590
ECl@ss 6.2	27270590
ECl@ss 7.0	27270501
ECl@ss 8.0	27270501
ECl@ss 8.1	27270501
ECl@ss 9.0	27270501
ECl@ss 10.0	27270501
ECl@ss 11.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

Blind hollow shaft, cable



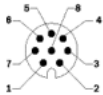
Attachment specifications



	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 device connector on cable/housing



Pin, 8-pin in M12	Signal TTL, HTL	Explanation
1	GND	Ground connection of the encoder
2	+U _S	Supply voltage (volt-free to housing)
3	A	Signal cable
4	B	Signal cable
5	Z	Signal cable
6	*A	Signal cable
7	*B	Signal cable
8	*Z	Signal cable
-	N.C.	Not assigned
-	N.C.	Not assigned
-	N.C.	Not assigned
-	Not connected	Not connected
Shield	Shield	Shield connected to housing on side of encoder. Connected to ground on side of control.

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.”

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