

DBS36E-BBCZ00S54

DBS36/50

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
DBS36E-BBCZ00S54	1091638

Other models and accessories → www.sick.com/DBS36_50



Detailed technical data

Features

Special device	✓
Specialty	Cable, 8-wire, 5 m with male connector Lumberg M16
Standard reference device	DBS36E-BBCP02000

Safety-related parameters

MTTF_D (mean time to dangerous failure)	600 years (EN ISO 13849-1) ¹⁾
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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.

Performance

Pulses per revolution	2,000
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
Power consumption	≤ 0.5 W (without load)

Electronics

Connection type	Special version
Connection type Detail	Cable, 8-wire, 5 m with male connector Lumberg M16
Supply voltage	7 ... 30 V
Reference signal, number	1

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

Reference signal, position	90°, electric, logically gated with A and B
Reverse polarity protection	✓
Short-circuit protection of the outputs	✓ ¹⁾

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

Mechanics

Mechanical design	Blind hollow shaft
Shaft diameter	8 mm Front clamp 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 movement static	± 0.3 mm (radial) ± 0.5 mm (axial) ²⁾
Permissible movement dynamic	± 0.1 mm (radial) ± 0.2 mm (axial) ²⁾
Operating speed	6,000 min ⁻¹ ³⁾
Maximum operating speed	≤ 8,000 min ⁻¹ ⁴⁾
Moment of inertia of the rotor	0.8 gcm ²
Bearing lifetime	2 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 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 4.7 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 not permitted)
Operating temperature range	-20 °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)

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cRUus certificate	✓

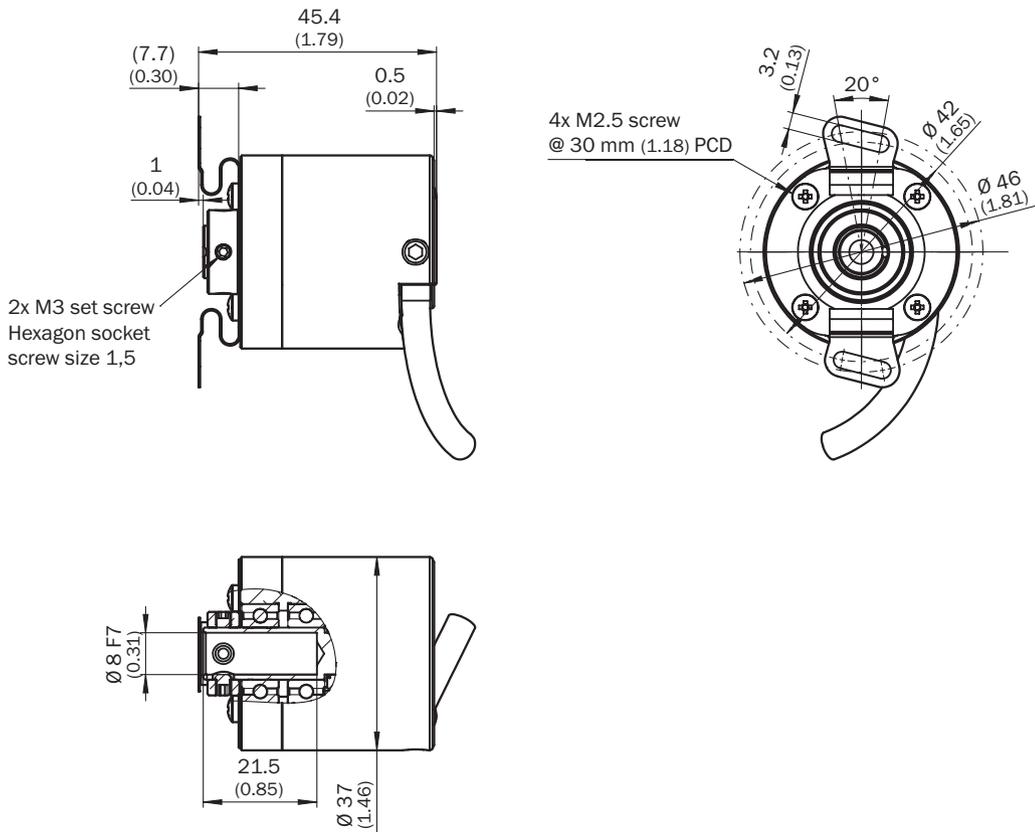
**Information according to Art. 3 of Data Act
(Regulation EU 2023/2854)**

✓

Classifications

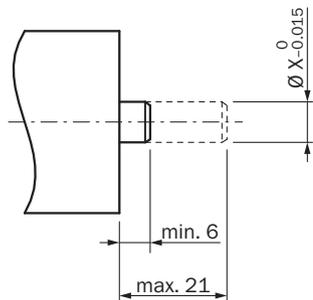
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270501
ECLASS 11.0	27270501
ECLASS 12.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing Blind hollow shaft, cable



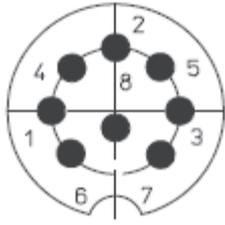
Dimensions in mm (inch)

Attachment specifications



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

PIN assignment



Wire color	Pin 8-pole for M12	Pin 12-pole for M23	Signal HTL/ OC 3-channel	Signal TTL/ HTL 6-channel	Explanation
brown	1	6	Not connected	A-	Signal wire
white	2	5	A	A	Signal wire
black	3	1	Not connected	B-	Signal wire
pink	4	8	B	B	Signal wire
Yellow	5	4	Not connected	Z-	Signal wire
purple	6	3	Z	Z	Signal wire
blue	7	10	GND	GND	Ground connection of the encoder
Red	8	12	+Us	+Us	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
Shield	Shield	Shield	Shield	Shield	Shield (connected with housing on the encoder side)

Recommended accessories

Other models and accessories → www.sick.com/DBS36_50

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 2 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G02MAC1	6032866
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 5 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G05MAC1	6032867
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 10 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G10MAC1	6032868
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 20 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G20MAC1	6032869
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 25 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G25MAC1	6067859
	<ul style="list-style-type: none"> • Description: Incremental, shielded, SSI • Connection type head A: Female connector, M12, 8-pin, straight, A-coded • Signal type: Incremental, SSI • Cable: CAT5, CAT5e • Connection systems: IDC quick connection • Permitted cross-section: 0.14 mm² ... 0.34 mm² 	DOS-1208-GA01	6045001
	<ul style="list-style-type: none"> • Connection type head A: Flying leads • Connection type head B: Flying leads • Signal type: SSI, Incremental, HIPERFACE® • Items supplied: By the meter • Cable: 8-wire, PUR, halogen-free • Description: SSI, shielded, Incremental, HIPERFACE® 	LTG-2308-MWENC	6027529
	<ul style="list-style-type: none"> • Connection type head A: Flying leads • Connection type head B: Flying leads • Signal type: SSI, Incremental • Items supplied: By the meter • Cable: 11-wire, PUR • Description: SSI, shielded, Incremental 	LTG-2411-MW	6027530
	<ul style="list-style-type: none"> • Connection type head A: Flying leads • Connection type head B: Flying leads • Signal type: SSI, Incremental • Items supplied: By the meter • Cable: 12-wire, PUR, halogen-free • Description: SSI, shielded, Incremental 	LTG-2512-MW	6027531

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none">• Product family: Stator couplings• Description: Two-sided stator coupling, screw hole diameter 42 to 46 mm, slot width 3.2 mm	BEF-DS-DBS36	2066301

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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