

DBS36E-SZGMZOS85

DBS36/50

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DBS36E-SZGMZ0S85	1104779

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



Detailed technical data

Features

Special device	✓
Specialty	Customized stator coupling Cable, 8-wire, 5 m Customer-specific shaft
Standard reference device	DBS36E-SZGZZ0S50, 1093683

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	60
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	HTL / Push pull
Number of signal channels	3 channel
Initialization time	< 3 ms
Output frequency	≤ 300 kHz
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)

Electronics

Connection type	Cable, 8-wire, universal, 5 m
Supply voltage	7 ... 27 V
Reference signal, number	1
Reference signal, position	90°, electric, logically gated with A and B

Reverse polarity protection	✓
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Mechanics

Mechanical design	Special version
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 loading	40 N (radial) ¹⁾ 20 N (axial)
Operating speed	6,000 min ⁻¹ ²⁾
Maximum operating speed	≤ 8,000 min ⁻¹ ³⁾
Moment of inertia of the rotor	0.6 gcm ²
Bearing lifetime	2 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

¹⁾ Higher values are possible using limited bearing life.

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

³⁾ 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 ... +70 °C
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

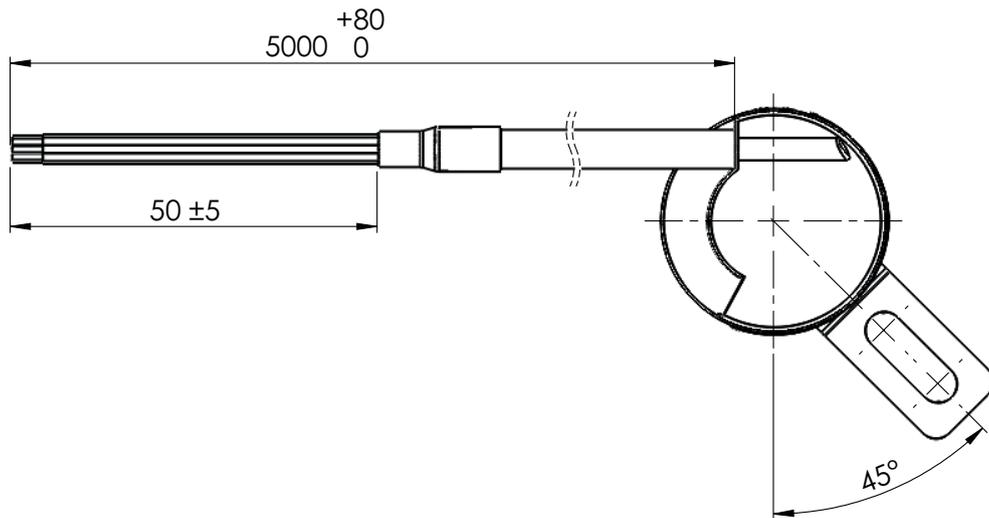
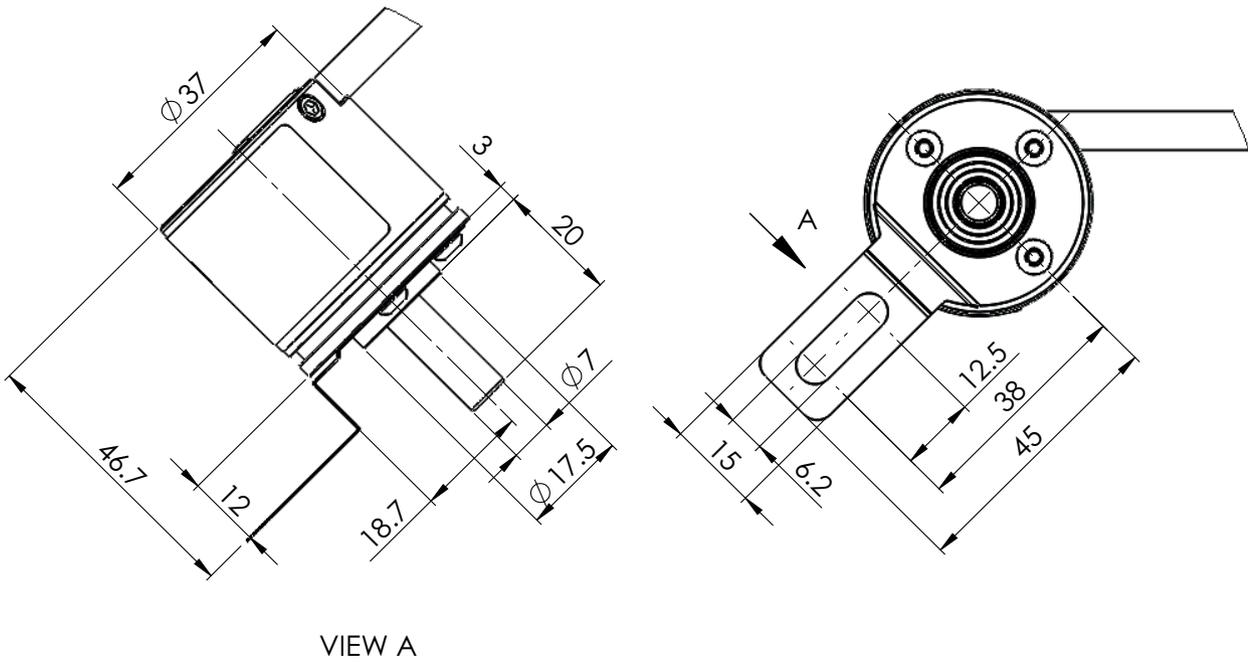
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cRUus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590

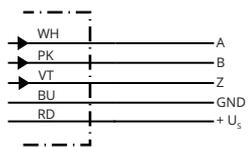
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270501
ECLASS 11.0	27270501
ECLASS 12.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing



Dimensions in mm (inch)

PIN assignment



Wire colors (cable connection)	Male connector M12, 8-pin	Male connector M23, 12-pin	SignalOpen Collector3 channel	Explanation
White	2	5	A	Signal wire

Wire colors (cable connection)	Male connector M12, 8-pin	Male connector M23, 12-pin	SignalOpen Collector3 channel	Explanation
Pink	4	8	B	Signal wire
Purple	6	3	Z	Signal wire
Blue	7	10	GND	Ground connection
Red	8	12	+U _s	Supply voltage

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"> Description: Incremental, shielded, SSI 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 Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G02MAC1	6032866
	<ul style="list-style-type: none"> Description: Incremental, shielded, SSI 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 Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G05MAC1	6032867
	<ul style="list-style-type: none"> Description: Incremental, shielded, SSI 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 Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G10MAC1	6032868
	<ul style="list-style-type: none"> Description: Incremental, shielded, SSI 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 Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants 	DOL-1208-G20MAC1	6032869
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 2 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G02MLA3	2030682
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 7 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G07MLA3	2030685
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 10 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G10MLA3	2030688
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 15 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G15MLA3	2030692
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 20 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G20MLA3	2030695
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 3 m, 12-wire, PUR, halogen-free 	DOL-2312-G03MMA3	2029213

	Brief description	Type	part no.
	<ul style="list-style-type: none"> Application: Zones with oils and lubricants Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 5 m, 12-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2312-G05MMA3	2029214
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 1.5 m, 12-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2312-G1M5MA3	2029212
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 10 m, 12-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2312-G10MMA3	2029215
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 20 m, 12-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2312-G20MMA3	2029216
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 25 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G25MLA3	2030699
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 30 m, 11-wire, PUR Application: Zones with oils and lubricants 	DOL-2312-G30MLA3	2030702
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: Incremental Cable: 30 m, 12-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2312-G30MMA3	2029217
	<ul style="list-style-type: none"> Description: HIPERFACE[®], shielded, SSI, Incremental Connection type head A: Female connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE[®], SSI, Incremental Connection systems: Solder connection 	DOS-2312-G	6027538
	<ul style="list-style-type: none"> Description: HIPERFACE[®], shielded, SSI, Incremental Connection type head A: Female connector, M23, 12-pin, angled, A-coded Signal type: HIPERFACE[®], SSI, Incremental Connection systems: Solder connection 	DOS-2312-W01	2072580
	<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 	LTG-2512-MW	6027531

	Brief description	Type	part no.
	<ul style="list-style-type: none"> Cable: 12-wire, PUR, halogen-free Description: SSI, shielded, Incremental 		
	<ul style="list-style-type: none"> Description: Incremental, shielded Connection type head A: Male connector, M12, 8-pin, straight, A-coded Signal type: Incremental Cable: CAT5, CAT5e Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² ... 0.34 mm² 	STE-1208-GA01	6044892
	<ul style="list-style-type: none"> Description: HIPERFACE[®], shielded, SSI, Incremental, RS-422 Connection type head A: Male connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE[®], SSI, Incremental, RS-422 Connection systems: Solder connection 	STE-2312-G	6027537
	<ul style="list-style-type: none"> Description: HIPERFACE[®], shielded, SSI, Incremental Connection type head A: Female connector, M23, 9-pin, straight, A-coded Signal type: HIPERFACE[®], SSI, Incremental Connection systems: Solder connection 	DOS-2309-G	6028533

Mounting systems

	<ul style="list-style-type: none"> Description: Flange adapter, adapts face mount flange with 20 mm centering collar to 33 mm servo flange Material: Aluminum Details: Aluminum 	BEF-FA-020-033	2066312
	<ul style="list-style-type: none"> Description: Servo clamps, small, for servo flange (clamps, eccentric fastener), 1,000 pcs, without mounting material Items supplied: Without mounting hardware 	BEF-WK-RESOL2	2084088

measuring wheels and measuring wheel mechanics

	<ul style="list-style-type: none"> Product segment: Measuring wheels and measuring wheel mechanics Product: Measuring wheels Description: Aluminium measuring wheel with O-ring (NBR70) for 6 mm solid shaft, circumference 200 mm 	BEF-MR006020R	2055222
	<ul style="list-style-type: none"> Product segment: Measuring wheels and measuring wheel mechanics Product: Measuring wheels Description: Measuring wheel with O-ring (NBR70) for 6 mm solid shaft, circumference 300 mm 	BEF-MR006030R	2055634
	<ul style="list-style-type: none"> Product segment: Measuring wheels and measuring wheel mechanics Product: Measuring wheel mechanics Description: O-ring for measuring wheels (circumference 200 mm) 	BEF-OR-053-040	2064061
	<ul style="list-style-type: none"> Product segment: Measuring wheels and measuring wheel mechanics Product: Measuring wheel mechanics Description: O-ring for measuring wheels (circumference 300 mm) Items supplied: 2x O-ring 	BEF-OR-083-050	2064076

shaft adaptation

	<ul style="list-style-type: none"> Product segment: Shaft adaptation Product: Shaft couplings Description: Claw coupling, shaft diameter 6 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular ± 1.3°, max. speed 19,000 rpm, angle of twist max. 10°, -30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane 	KUP-0610-J	2127056
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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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