

DBS36E-BBAK00S45

DBS36/50

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DBS36E-BBAK00S45	1088626

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



Detailed technical data

Features

Special device	✓
Specialty	Ambient data - Operating temperature range possible from -35° Cable, 8-wire, universal, 2 m
Standard reference device	DBS36E-BBAK00500, 1060527

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	500
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)

Electronics

Connection type	Special version
Connection type Detail	Cable, 8-wire, universal, 2 m
Supply voltage	4.5 ... 5.5 V

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

Reference signal, number	1
Reference signal, position	90°, electric, logically gated with A and B
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	-35 °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	✓

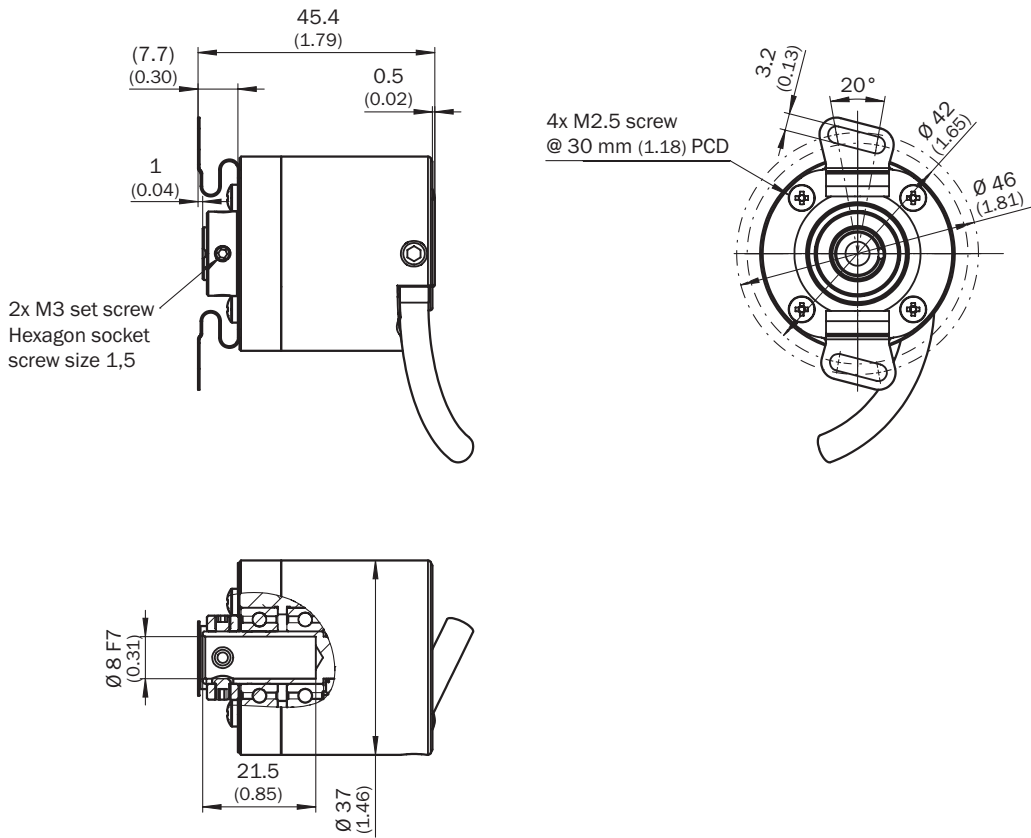
**Information according to Art. 3 of Data Act
(Regulation EU 2023/2854)**

✓

Classifications

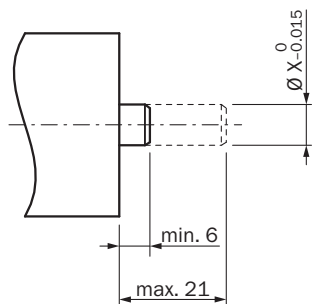
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270501
ECLASS 11.0	27270501
ECLASS 12.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC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

Dimensional drawing Blind hollow shaft, cable



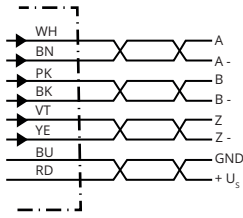
Dimensions in mm (inch)

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 colors (cable connection)	Male connector M12, 8-pin	Male connector M23, 12-pin	TTL/HTL 6-channel signal	Explanation
Brown	1	6	A-	Signal wire
White	2	5	A	Signal wire
Black	3	1	B-	Signal wire
Pink	4	8	B	Signal wire
Yellow	5	4	Z-	Signal wire
Purple	6	3	Z	Signal wire
Blue	7	10	GND	Ground connection
Red	8	12	+Us	Supply voltage
-	-	9	Not assigned	Not assigned
-	-	2	Not assigned	Not assigned
-	-	11	Not assigned	Not assigned
-	-	7	Not assigned	Not assigned

Type label

<p>Incr. Encoder MODEL NUMBER Ident. Nr. YYWW - cn 1234567 SERIALNO</p>	Lines LINE	VDC VL	Driver VT	<p>Incr. Encoder MODEL NUMBER Ident. Nr. YYWW - cn 1234567 SERIALNO</p> <p>Sick, D-79183 Waldkirch</p>																			
	<table border="1"> <thead> <tr> <th>Signal</th> <th>Wire Color</th> <th>Signal</th> <th>Wire Color</th> </tr> </thead> <tbody> <tr> <td>+ US</td> <td>Red</td> <td>A</td> <td>White</td> </tr> <tr> <td>GND</td> <td>Blue</td> <td>A-</td> <td>Brown</td> </tr> <tr> <td>Z</td> <td>Lilac</td> <td>B</td> <td>Pink</td> </tr> <tr> <td>Z-</td> <td>Yellow</td> <td>B-</td> <td>Black</td> </tr> </tbody> </table>	Signal	Wire Color		Signal	Wire Color	+ US	Red	A	White	GND	Blue	A-	Brown	Z	Lilac	B	Pink	Z-	Yellow	B-	Black	
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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 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: 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 Connection type head A: Male connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	STE-2312-GX	6028548
	<ul style="list-style-type: none"> Description: HIPERFACE®, shielded, SSI, Incremental Connection type head A: Male connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	STE-2312-G01	2077273
	<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
	<ul style="list-style-type: none"> Connection type head A: Flying leads Connection type head B: Flying leads Signal type: SSI, TTL, HTL, Incremental Items supplied: By the meter Cable: 12-wire, UV and saltwater-resistant, PUR, halogen-free Description: SSI, shielded, TTL, HTL, Incremental 	LTG-2612-MW	6028516
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

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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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