Data sheet

DBS50E-S5EP00S04

DBS36/50

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DBS50E-S5EP00S04	1067091

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

Detailed technical data

Features

Special device	✓
Specialty	Face mount flange, solid shaft Ø 8 mm, length 15.5 mm Number of lines 1000
Standard reference device	DBS50E-S5EP01000, 1062886

Safety-related parameters

$MTTF_D$ (mean time to dangerous failure)	600 years (EN ISO 13849-1) [1]

[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	1,000
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	HTL / Push pull
Number of signal channels	6-channel
Initialization time	< 3 ms
Output frequency	≤ 200 kHz
Load current	≤ 20 mA
Power consumption	< 0.5 W (without load)

Electronics

Connection type	Special version
Connection type Detail	Cable, 8-wire, with plug, M12, 5-pin, universal, 0.5 m
Supply voltage	7 ... 30 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
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	Solid shaft, face mount flange
Shaft diameter	8 mmWith flat
Shaft length	15.5 mm
Weight	+ 180 g (with connecting cable)
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum
Material, cable	PVC
Start up torque	+ 0.9 Ncm (+20 °C)
Operating torque	0.6 Ncm (+20 °C)
Permissible shaft loading	30 N (axial) 50 N (radial)
Operating speed	6,000 min^{-1} [1]
Maximum operating speed	8,000 min^{-1} [2]
Moment of inertia of the rotor	0.65 gcm^2
Bearing lifetime	2 x 10^9 revolutions
Angular acceleration	≤ 500,000 rad/s^2

[1] Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.
[2] 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	–10 °C ... +60 °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

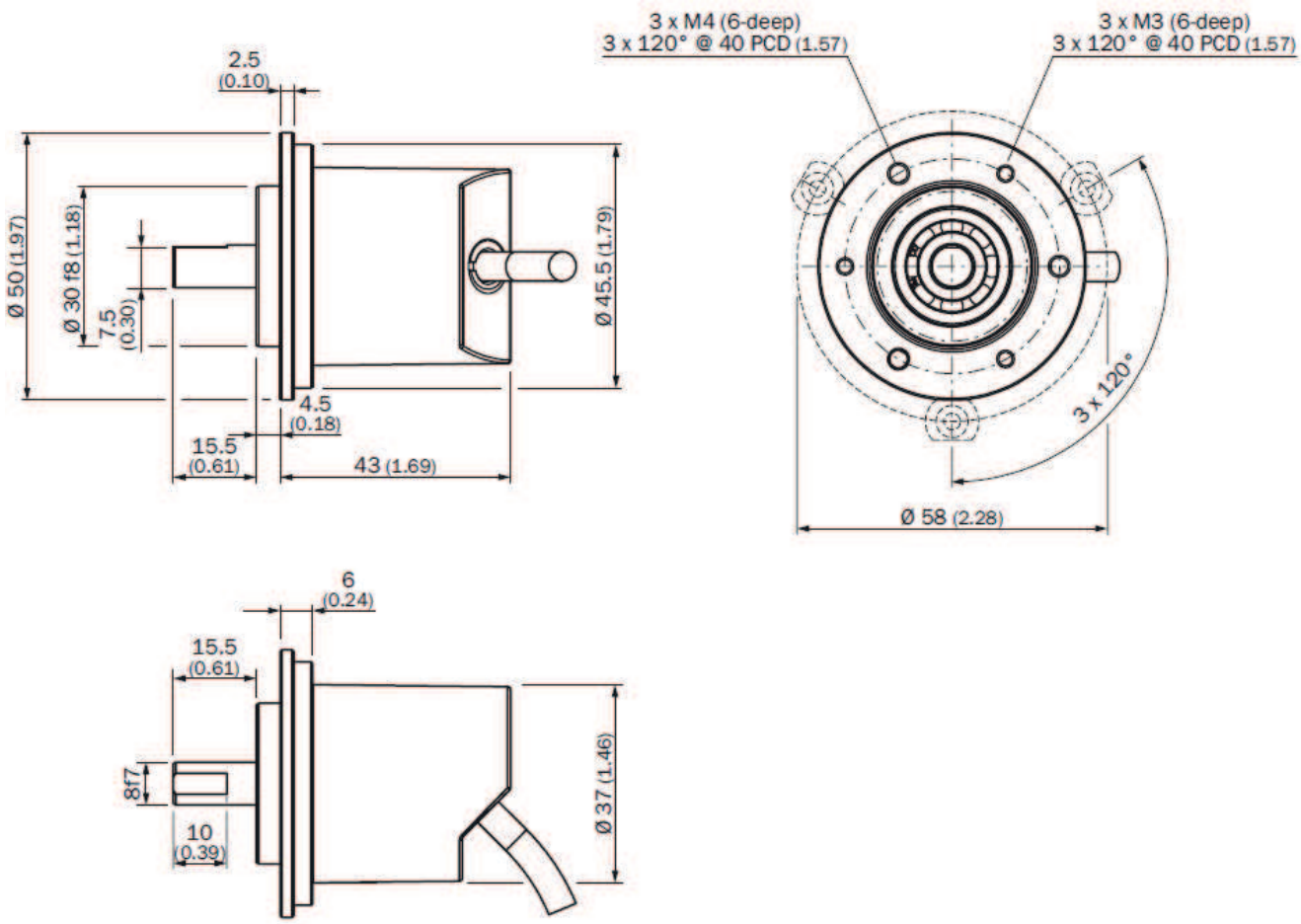
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501

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

Certificates

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

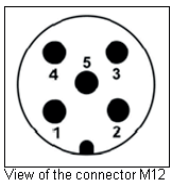
Dimensional drawing



Dimensions in mm (inch)

PIN assignment

PIN	TTL/HTL signal	Explanation
1	+Us	Supply voltage potential free to housing
2	B	Signal line
3	GND	Ground connection of the encoder
4	A	Signal line
5	Z	Signal line
screen	screen	Screen on M12 screw



View of the connector M12
Ready-made cable end

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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