Data sheet

DBS36E-S3RK00S68

DBS36/50

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DBS36E-S3RK00S68	1092608

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

Detailed technical data

Features

Special device	✓
Specialty	Solder the wire A-, B- and Z- to PCBA slot Cable length 3 m
Standard reference device	DBS36E-S3RK01000, 1075929

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	Open Collector
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, 5-wire, universal, 3 m
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	Solid shaft, face mount flange
Shaft diameter	6 mm With flat
Shaft length	12 mm
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 ... +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)

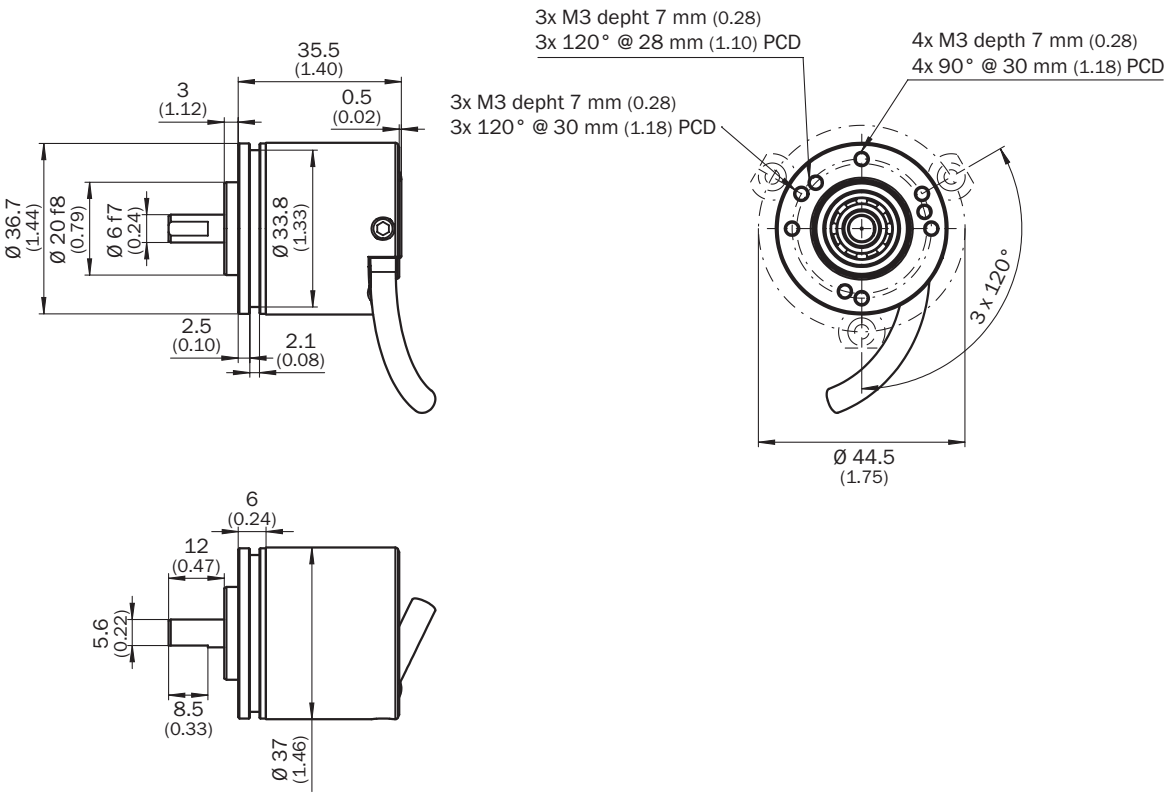
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
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 Solid shaft, face mount flange, shaft 6 mm x 12 mm, type 0 flange design hole pattern



Dimensions in mm (inch)

PIN assignment

Color of wires	Signal TTL, HTL	Description
White	A_	Signal line
Pink	B_	Signal line
Purple	Z_	Signal line
Blue	GND	Ground connection of the encoder
Red	+Us	Supply voltage
Screen	Screen	Screen connected to encoder housing

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

SICK
Sensor Intelligence.