SICK.COM

DATA SHEET

DBS60E-SZAZZ0S190

DBS60
Incremental encoders

SICK Sensor Intelligence

Illustration may differ

INCREMENTAL ENCODERS

DBS60E-SZAZ-Z0S190

ORDERING INFORMATION

Type	part no.
DBS60E-SZAZZ0S190	1127449

Further device versions and accessories at www.sick.com/DBS60

DETAILED TECHNICAL DATA

FEATURES

Special device	✓
Specialty	ATM60 housing (Part.no. 4096182) with DBS60 core electronics Premounted ABP FSKK 3022 10/10 spring disk Bus adapter with D-Sub connector
Standard reference device	DBS60E-S4AK01024, 1095918

SAFETY-RELATED PARAMETERS

$MTTF_D$ (mean time to dangerous failure)	500 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	1,024
Measuring step	≤ 90°, electric/pulses per revolution
Measuring step deviation	± 18° / pulses per revolution
Error limits	Measuring step deviation x 3
Duty cycle	≤ 0.5 ± 5 %

INTERFACES

Communication interface	Incremental
Communication Interface detail	TTL / RS-422 [1) 2)]
Number of signal channels	6-channel
Initialization time	< 5 ms [3)]
Output frequency	+ 300 kHz [4)]
Load current	≤ 30 mA, per channel
Operating current	≤ 50 mA (without load)

[1)] LED indicator purple: Connection to the encoder exists, but is faulty.

[2)] LED indicator red: No connection to the encoder.

[3)] Valid signals can be read once this time has elapsed.

[4)] Up to 450 kHz on request.

ELECTRONICS

Connection type	Special version
Connection type Detail	Bus adapter with D-Sub connector
Supply voltage	4.5 ... 5.5 V
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)] Short-circuit opposite to another channel or GND permissible for max. 60 s. No protection signal against U_s.

MECHANICS

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 mm With flat
Shaft length	19 mm
Flange type / stator coupling	Special version
Flange type / stator coupling detail	Premounted ABP FSKK 3022 10/10 spring disk
Weight	+ 0.5 kg [1)]
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum die cast
Start up torque	+ 1.2 Ncm (+20 °C)
Operating torque	1.1 Ncm (+20 °C)
Permissible shaft loading	100 N (radial) [2)] 50 N (axial) [2)]
Operating speed	6,000 min^{-1} [3)]
Maximum operating speed	9,000 min^{-1} [4)]
Moment of inertia of the rotor	33 gcm^2
Bearing lifetime	3.6 x 10^9 revolutions

[1)] Based on encoder with male connector or cable with male connector.

[2)] Higher values are possible using limited bearing life.

[3)] Allow for self-heating of 3.2 K per 1,000 rpm when designing the operating temperature range.

[4)] Maximum speed which does not cause mechanical damage to the encoder. Impact on the service life and signal quality is possible. Please note the maximum output frequency.

Angular acceleration	≤ 500,000 rad/s²

[1] Based on encoder with male connector or cable with male connector.

[2] Higher values are possible using limited bearing life.

[3] Allow for self-heating of 3.2 K per 1,000 rpm when designing the operating temperature range.

[4] Maximum speed which does not cause mechanical damage to the encoder. Impact on the service life and signal quality is possible. Please note the maximum output frequency.

AMBIENT DATA

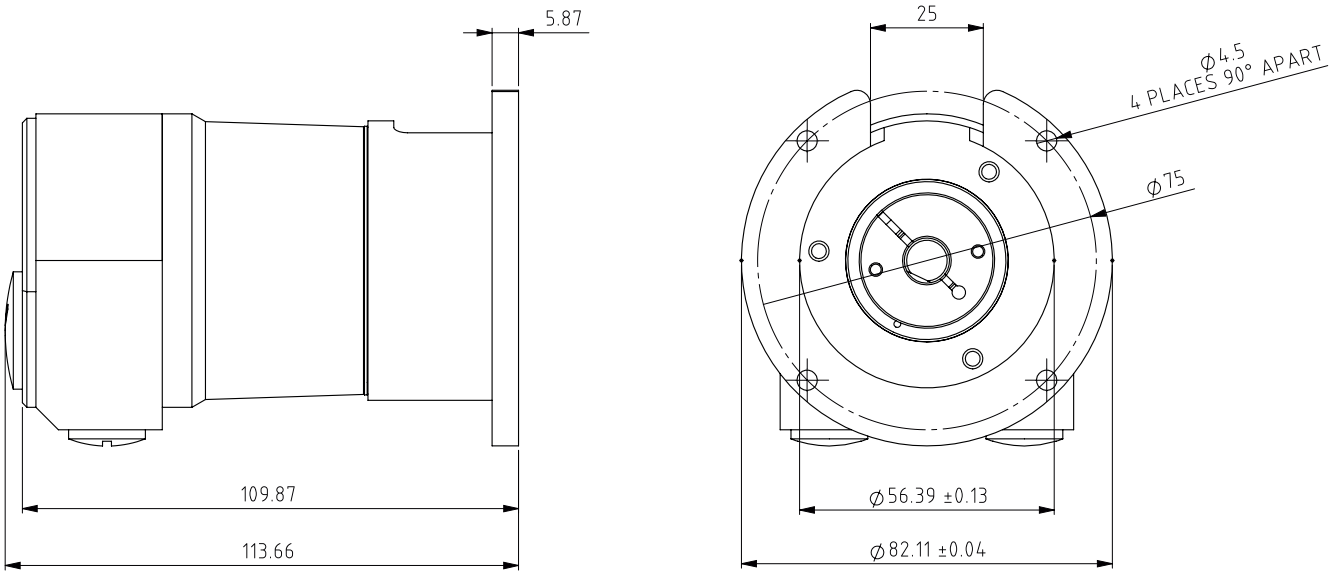
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP65, housing side (IEC 60529) IP65, shaft side (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	–20 °C ... +85 °C [1]
Storage temperature range	–40 °C ... +100 °C, without package
Resistance to shocks	100 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

[1] These values relate to all mechanical versions including recommended accessories unless otherwise noted.

CERTIFICATES

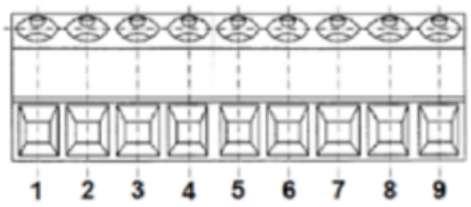
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING



Dimensions in mm (inch)

DIMENSIONAL DRAWING

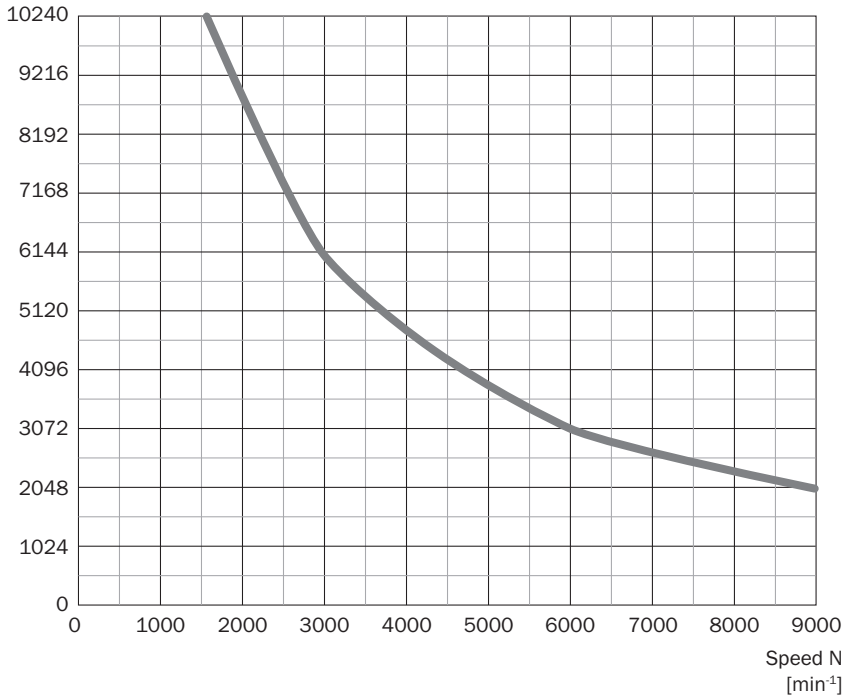


Terminal block Allocation		
Terminal no.	**Signal**	**Explanation**
1	Us	Supply voltage
2	Gnd	Ground connection
3	A	Signal line
4	A-	Signal line
5	B	Signal line
6	B-	Signal line
7	Z	Signal line
8	Z-	Signal line
9	N/C	Not connected

Dimensions in mm (inch)

DIAGRAMS

Pulses per revolution



Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1127449

SICK AG
WALDKIRCH
GERMANY
SICK.COM

SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

SICK

Sensor Intelligence