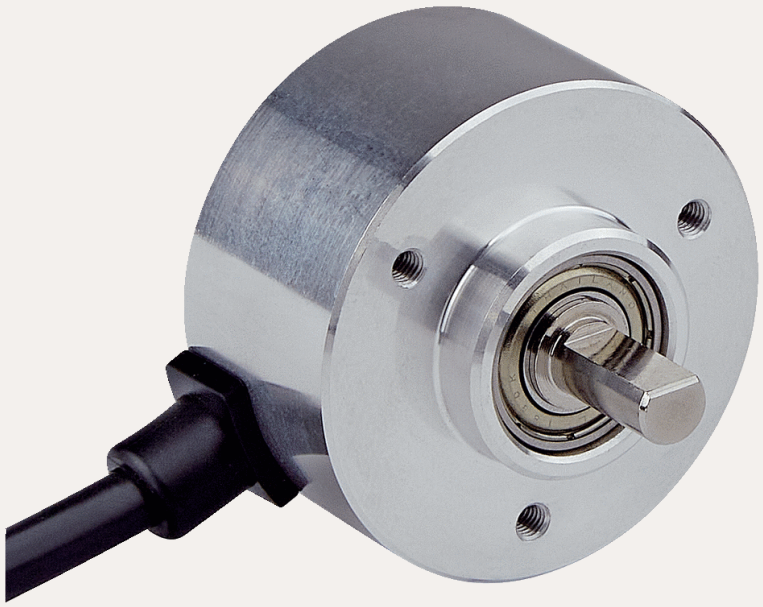
SICK.COM



DATA SHEET

DLS40E-S3AV00060

DLS40
Incremental encoders

SICK Sensor Intelligence



Illustration may differ

INCREMENTAL ENCODERS

DLS40E-S3AV00060

ORDERING INFORMATION

Type	part no.
DLS40E-S3AV00060	On request

Further device versions and accessories at www.sick.com/DLS40

DETAILED TECHNICAL DATA

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	60
Measuring step	90°, electric/pulses per revolution
Duty cycle	≤ 0.5 ± 10 %

INTERFACES

Communication interface	Incremental
Communication Interface detail	TTL / RS-422
Number of signal channels	6-channel
Output frequency	≤ 150 kHz
Load current	≤ 30 mA
Power consumption	≤ 2 W (without load)

ELECTRONICS

Connection type	Cable, 8-wire, radial, 2 m
Supply voltage	4.5 ... 5.5 V
Reference signal, number	1
Reverse polarity protection	✓

[1] Protection against short circuit only to GND. Short-circuit resistance is only guaranteed when GND and U_s are connected correctly.

Short-circuit protection of the outputs	✓ [1]

[1] Protection against short circuit only to GND. Short-circuit resistance is only guaranteed when GND and U_s are connected correctly.

MECHANICS

Mechanical design	Solid shaft, face mount flange
Shaft diameter	6 mm With flat
Shaft length	12 mm
Weight	Approx. 130 g [1]
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum
Material, cable	PVC
Start up torque	0.3 Ncm
Operating torque	0.2 Ncm
Permissible shaft loading	40 N (radial) [2] 20 N (axial)
Operating speed	6,000 min^{-1} [3]
Maximum operating speed	≤ 8,000 min^{-1} [4]
Moment of inertia of the rotor	7.6 gcm^2
Bearing lifetime	2.0 x 10^9 revolutions
Angular acceleration	≤ 500,000 rad/s^2

[1] Relates to encoders with 2 m cable connection.

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

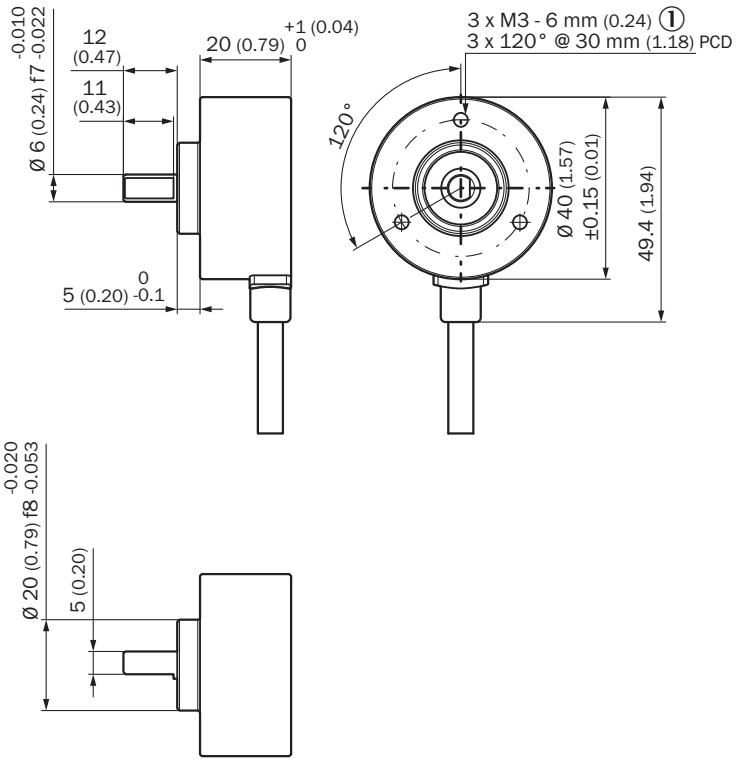
[3] Allow for self-heating of 1.3 K per 1,000 rpm when designing the operating temperature range.

[4] No permanent operation. Decreasing signal quality.

AMBIENT DATA

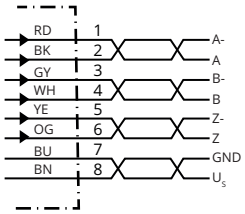
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP50
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	–10 °C ... +70 °C
Storage temperature range	–25 °C ... +85 °C
Resistance to shocks	100 g, 6 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

DIMENSIONAL DRAWING SOLID SHAFT



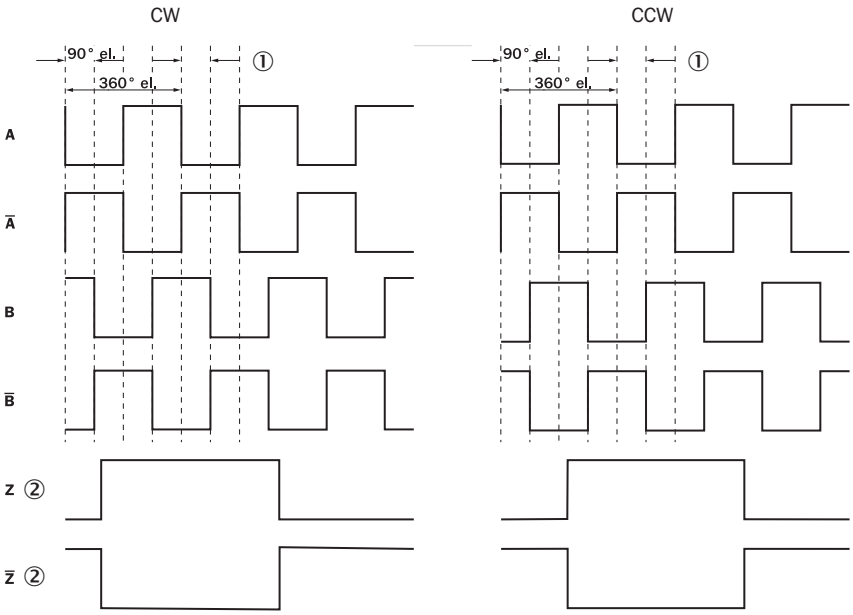
Dimensions in mm (inch)
① depth

ANSCHLUSSBELEGUNG



Wire colors (cable connection)	Signal	Description
Brown	U_s	Supply voltage
Blue	GND	Ground connection
Black	A	Signal cable
White	B	Signal cable
Orange	Z	Signal cable
Red	A-	Signal cable
Gray	B-	Signal cable
Yellow	Z-	Signal cable

DIAGRAMS TTL / RS-422



① Measuring step
② Only as reference

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/DLS40

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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

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