

DFS60B-THAK00S96

DFS60

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
DFS60B-THAK00S96	1088235

Other models and accessories → www.sick.com/DFS60



Detailed technical data

Features

Special device	✓
Specialty	Cable, 8-wire, universal, 1.5 m, customized cable connection (10 cm braided shield)
Standard reference device	DFS60B-THAK10000, 1058444

Performance

Pulses per revolution	10,000 ¹⁾
Measuring step	90° electric/pulses per revolution
Measuring step deviation at non binary number of lines	± 0.01°
Error limits	± 0.05°

¹⁾ See maximum revolution range.

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / RS-422
Number of signal channels	6-channel
Initialization time	40 ms
Output frequency	≤ 600 kHz
Load current	≤ 30 mA
Operating current	40 mA (without load)
4.5 V... 5.5 V, TTL/RS-422	
Load current	≤ 30 mA
Operating current	40 mA (without load)
4.5 V ... 5.5 V, Open Collector	
Load current	≤ 30 mA
Operating current	40 mA (without load)
TTL/RS-422	
Load current	≤ 30 mA
HTL/Push pull	
Load current	≤ 30 mA
TTL/HTL	
Load current	≤ 30 mA

Open Collector	Load current	≤ 30 mA
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Electrical data

Connection type	Cable, 8-wire, universal, 1.5 m, customized cable connection (10 cm stripped cables) ¹⁾	
Supply voltage	4.5 ... 5.5 V	
Reference signal, number	1	
Reference signal, position	90°, electric, logically gated with A and B	
Short-circuit protection of the outputs	✓ ²⁾	
MTTFd: mean time to dangerous failure	300 years (EN ISO 13849-1) ³⁾	

¹⁾ The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.

²⁾ Short-circuit opposite to another channel, US or GND permissible for maximum 30 s.

³⁾ 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.

Mechanical data

Mechanical design	Through hollow shaft	
Shaft diameter	15 mm	
Weight	+ 0.2 kg	
Shaft material	Stainless steel	
Flange material	Aluminum	
Housing material	Aluminum die cast	
Start up torque	0.8 Ncm (+20 °C)	
Operating torque	0.6 Ncm (+20 °C)	
Permissible shaft movement, axial static/dynamic	± 0.5 mm / ± 0.2 mm	
Permissible shaft movement, radial static/dynamic	± 0.3 mm / ± 0.1 mm	
Operating speed	≤ 6,000 min ⁻¹ ¹⁾	
Moment of inertia of the rotor	40 gcm ²	
Bearing lifetime	3.6 x 10 ¹⁰ 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.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3	
Enclosure rating	IP65, housing side, cable connection (according to IEC 60529) IP65, shaft side (according to IEC 60529)	
Permissible relative humidity	90 % (condensation of the optical scanning not permitted)	
Operating temperature range	-40 °C ... +100 °C ¹⁾ -30 °C ... +100 °C ²⁾	
Storage temperature range	-40 °C ... +100 °C, without package	
Resistance to shocks	70 g, 6 ms (according to EN 60068-2-27)	

¹⁾ Stationary position of the cable.

²⁾ Flexible position of the cable.

Resistance to vibration	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)
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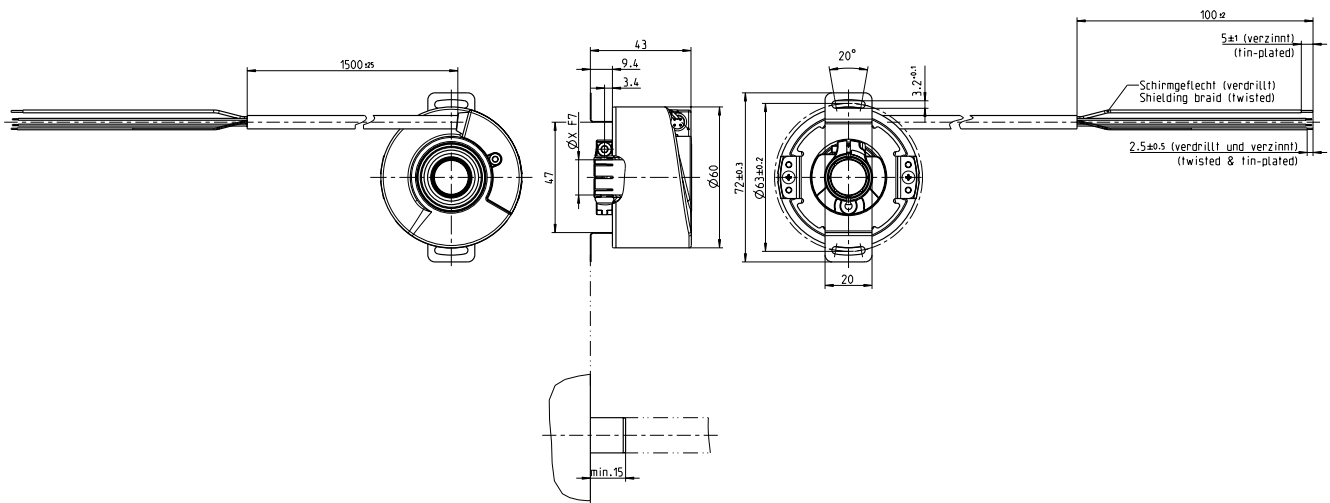
1) Stationary position of the cable.

2) Flexible position of the cable.

Classifications

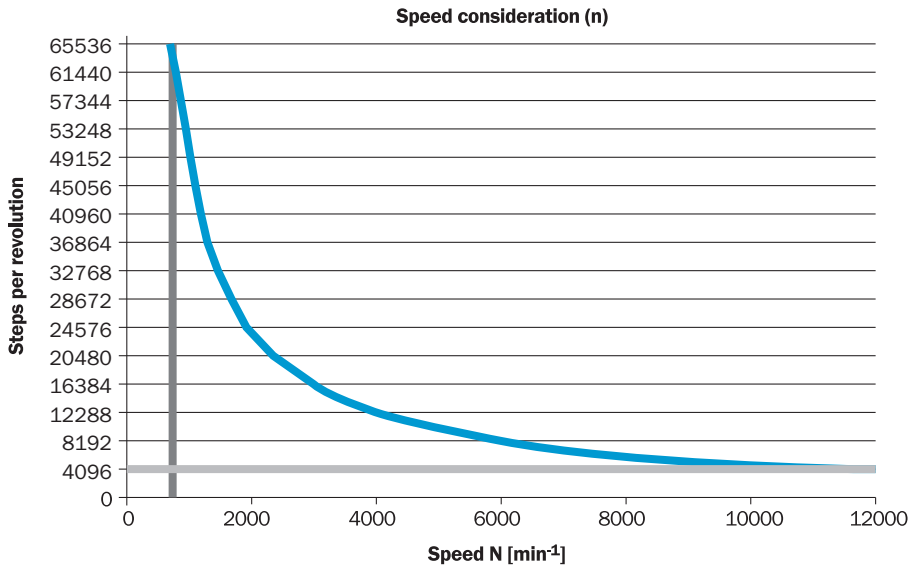
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ECl@ss 5.1.4	27270501
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ECl@ss 6.2	27270590
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ECl@ss 8.0	27270501
ECl@ss 8.1	27270501
ECl@ss 9.0	27270501
ECl@ss 10.0	27270501
ECl@ss 11.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))



Maximum revolution range

Maximum revolution range



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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