

DFS60E-BDEC00S20

DFS60

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
DFS60E-BDEC00S20	1084870

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

Detailed technical data

Features

Special device	✓
Specialty	Customized Encoderflange Without standard stator coupling Customized stator coupling (spring wire), M3 screw and washer included in delivery (loose) Customer specific clamping ring (hexagon socket screw)
Standard reference device	DFS60E-BDEC00500, 1054332

Performance

Pulses per revolution	500 ¹⁾
Measuring step	90° electric/pulses per revolution
Measuring step deviation at non binary number of lines	± 0.2°
Error limits	± 0.3°

¹⁾ See maximum revolution range.

Interfaces

Communication interface	Incremental
Communication Interface detail	HTL / Push pull
Number of signal channels	6-channel
Initialization time	40 ms
Output frequency	≤ 300 kHz
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)
4.5 V... 5.5 V, TTL/RS-422	
Load current	≤ 30 mA
4.5 V ... 5.5 V, Open Collector	
Load current	≤ 30 mA
TTL/RS-422	
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)
HTL/Push pull	
Load current	≤ 30 mA
Power consumption	≤ 0.5 W (without load)

TTL/HTL	Load current	≤ 30 mA
	Power consumption	≤ 0.5 W (without load)
Open Collector	Load current	≤ 30 mA
	Power consumption	≤ 0.5 W (without load)

Electrical data

Connection type	Male connector, M12, 8-pin, radial
Supply voltage	10 ... 32 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⁾
MTTFd: mean time to dangerous failure	300 years (EN ISO 13849-1) ²⁾

¹⁾ Short-circuit opposite to another channel, US or GND permissible for maximum 30 s.

²⁾ 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	Blind hollow shaft
Shaft diameter	10 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 61000-6-4
Enclosure rating	IP67, Housing side, male connector (according to IEC 60529) ¹⁾ IP65, shaft side (according to IEC 60529)
Permissible relative humidity	90 % (condensation of the optical scanning not permitted)

¹⁾ With mating connector fitted.

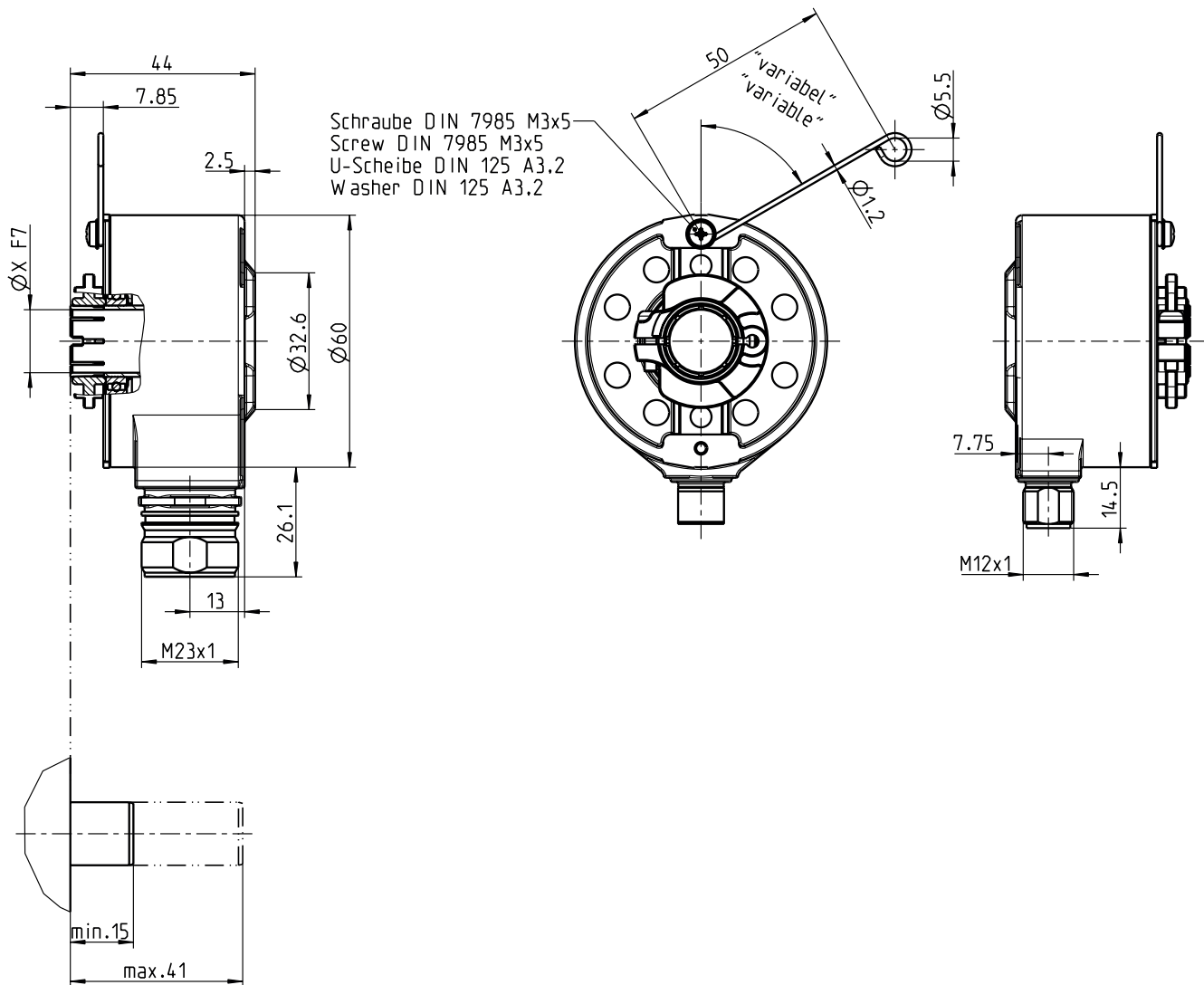
Operating temperature range	0 °C ... +85 °C
Storage temperature range	–40 °C ... +100 °C, without package
Resistance to shocks	50 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

¹⁾ With mating connector fitted.

Classifications

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

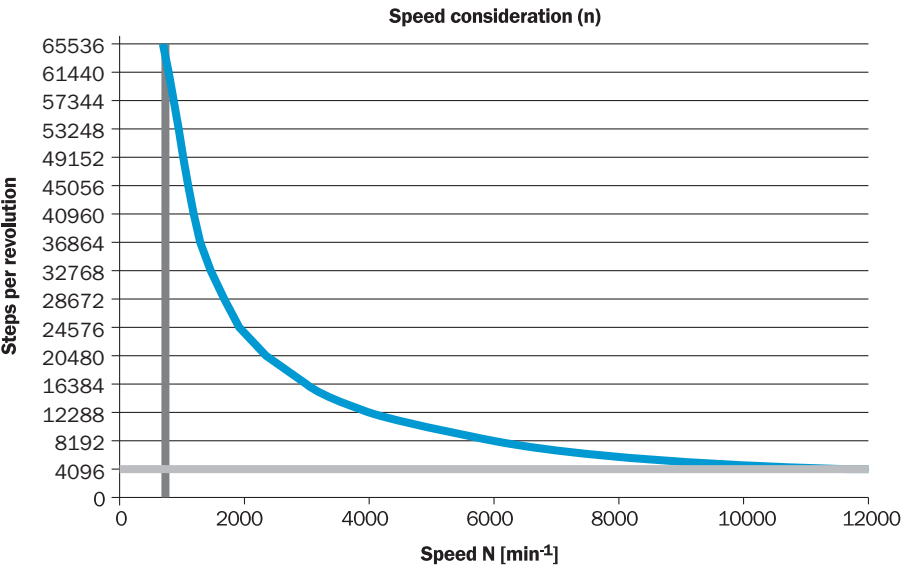
Dimensional drawing (Dimensions in mm (inch))



- ① Encoder with customized spring wire (delivery status: loose in scope of delivery)
- ② Assembly note: all screw connections must be secured against loosening with liquid screw adhesive (LOCTITE 243, for example).

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com