

DBS60E-REFZGS368

DBS60

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DBS60E-REFZGS368	1131566

Other models and accessories → www.sick.com/DBS60



Detailed technical data

Features

Special device	✓
Specialty	Cable, with male connector, M12, 8-pin, 0.3 m, radial, enclosure rating IP66, customer-specific encoder label with Getriebebau NORD part number:19651830 Second and identical encoder label fastened to packaging, customer-specific packaging label, no operating instructions (can be accessed digitally), device is exclusively for GBN
Standard reference device	DBS60E-REEPG1024
Additional information	Getriebebau NORD part number: 19651830

Safety-related parameters

MTTF_D (mean time to dangerous failure)	500 years (EN ISO 13849-1) ¹⁾
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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 / HTL / HTL
Number of signal channels	6-channel
Initialization time	< 5 ms ¹⁾
Output frequency	+ 300 kHz ²⁾
Load current	≤ 30 mA, per channel
Power consumption	≤ 1 W (without load)

¹⁾ Valid signals can be read once this time has elapsed.

²⁾ Up to 450 kHz on request.

Electronics

Connection type	Special version
Connection type Detail	Cable, with male connector, M12, 8-pin, 0.3 m, radial, enclosure rating IP66, customer-specific encoder label with Getriebebau NORD part number:19651830
Supply voltage	4.5 ... 30 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, US or GND permissible for maximum 30 s.

Mechanics

Mechanical design	Through hollow shaft
Shaft diameter	12 mm Rear clamping
Flange type / stator coupling	1-sided stator coupling, slot, screw hole circle radius 32.1 mm–37.6 mm
Weight	+ 0.25 kg ¹⁾
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 movement static	± 0.3 mm (radial) ± 0.5 mm (axial) ²⁾
Permissible movement dynamic	± 0.1 mm (radial) ± 0.2 mm (axial) ²⁾
Operating speed	6,000 min ⁻¹ ³⁾
Maximum operating speed	9,000 min ⁻¹ ⁴⁾
Moment of inertia of the rotor	50 gcm ²
Bearing lifetime	3.6 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

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

²⁾ Not applicable for stator coupling type C and K.

³⁾ Allow for self-heating of 2.6 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	IP66, housing side (IEC 60529) ¹⁾ IP66, shaft side (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)

¹⁾ With mating connector fitted.

²⁾ These values relate to all mechanical versions including recommended accessories unless otherwise noted.

Operating temperature range	-20 °C ... +85 °C ²⁾
Storage temperature range	-40 °C ... +100 °C, without package
Resistance to shocks	250 g, 3 ms (EN 60068-2-27)
Resistance to vibration	30 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

¹⁾ With mating connector fitted.

²⁾ These values relate to all mechanical versions including recommended accessories unless otherwise noted.

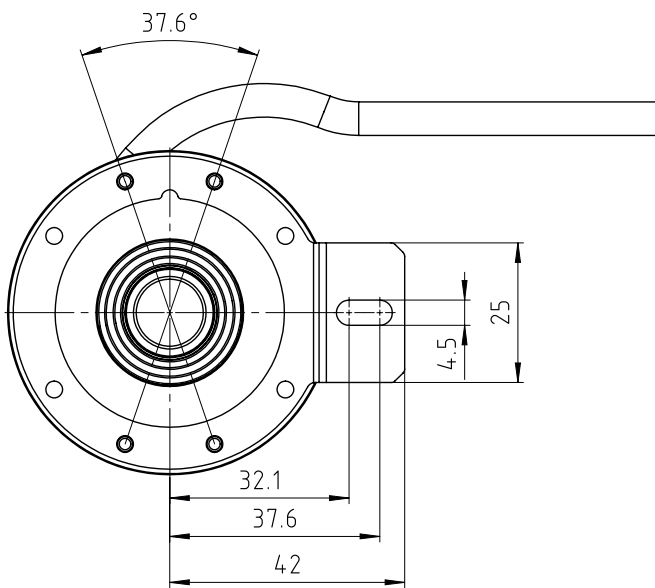
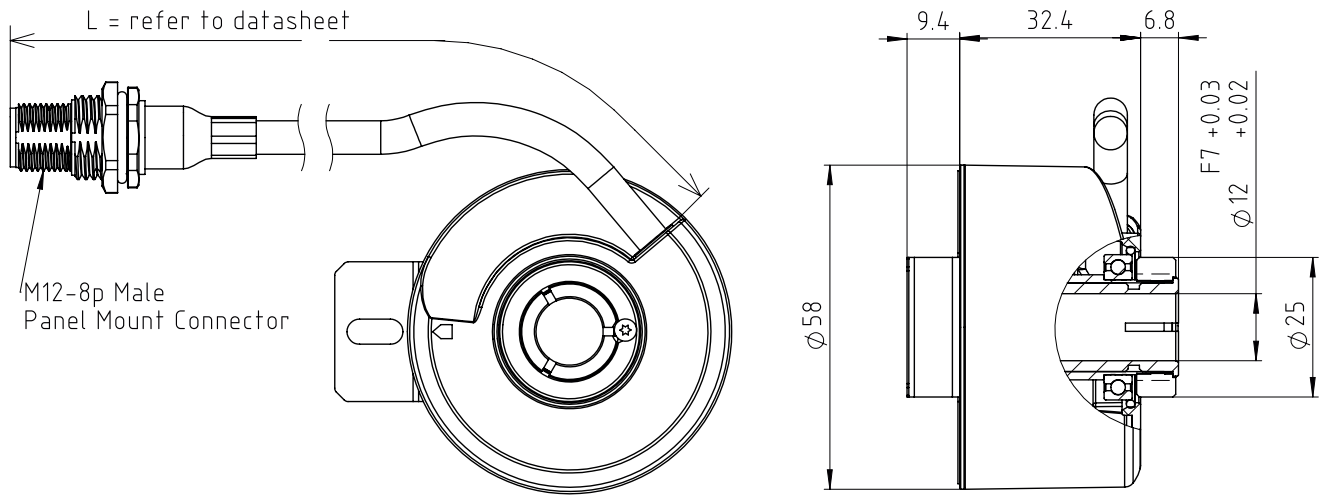
Certificates

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)	✓

Classifications

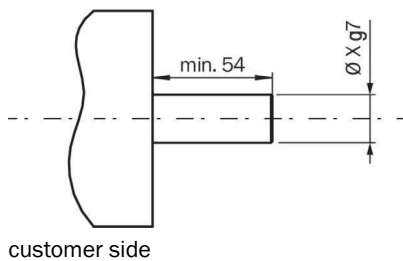
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ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270501
ECLASS 11.0	27270501
ECLASS 12.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing

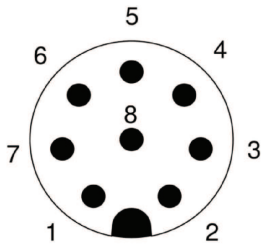


Dimensions in mm (inch)

Attachment specifications Through hollow shaft with rear clamping













PIN assignment



Pin	Signal
1	GND
2	+Us
3	A
4	A-
5	B
6	B-
7	Z
8	Z-

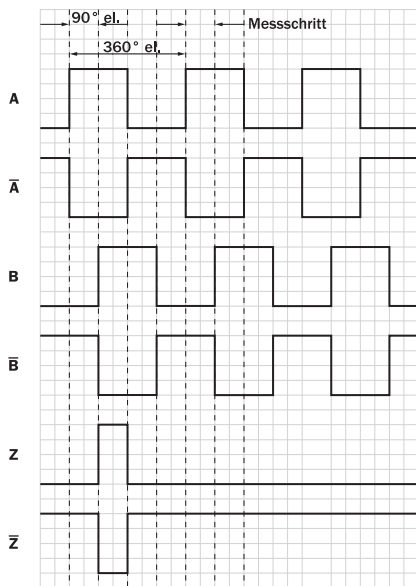
Type label Packaging label

Mat. Nr.: 19651830 SICK DRIVESYSTEMS DE-79183 WALDKIRCH Product ID pid.sick.com/ P/N 1131566 / S/N SERIALNO DBS60E-REFZGS368 Incr. Encoder		<table border="1"> <tr> <td>Signal</td> <td>+US</td> <td>GND</td> <td>Z</td> <td>Z-</td> <td>A</td> <td>A-</td> <td>B</td> <td>B-</td> </tr> <tr> <td>Wire Color</td> <td>BN/GN</td> <td>WH/GN</td> <td>RD</td> <td>BK</td> <td>BN</td> <td>GN</td> <td>GY</td> <td>PK</td> </tr> <tr> <td>LINE Lines</td> <td>DC</td> <td>VL</td> <td colspan="2">VT</td> <td colspan="4"></td> </tr> <tr> <td colspan="2">low-voltage limited</td> <td colspan="7">Class2</td> </tr> <tr> <td colspan="9">energy circuit</td> </tr> </table>	Signal	+US	GND	Z	Z-	A	A-	B	B-	Wire Color	BN/GN	WH/GN	RD	BK	BN	GN	GY	PK	LINE Lines	DC	VL	VT						low-voltage limited		Class2							energy circuit									   
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Type label



Diagrams Signal outputs for electrical interfaces TTL and HTL



Cw with view on the encoder shaft in direction "A", compare dimensional drawing.

Supply voltage	Output
10 V ... 30 V	TTL

Diagrams

Pulses per revolution



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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