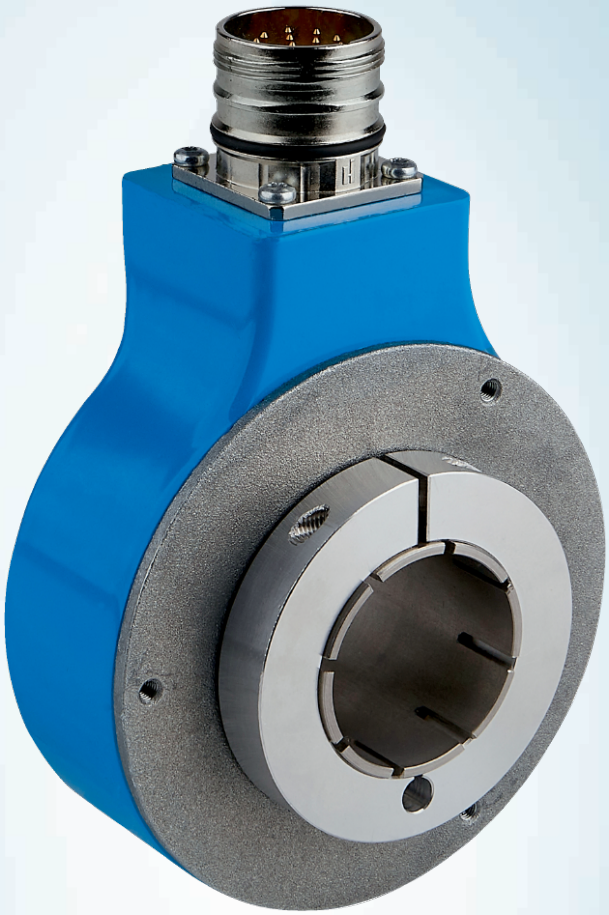
Data sheet



# DGS80B-TSLA01024

## DGS80/90

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| DGS80B-TSLA01024 | 1118696 |

Other models and accessories ➜ www.sick.com/DGS80_90

## Detailed technical data

### Safety-related parameters

| | |
|---|---|
| **$MTTF_D$ (mean time to dangerous failure)** | 518 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** | ± 15° electrical |
| **Duty cycle** | ≤ 0.5 ± 15 % |

### Interfaces

| | |
|---|---|
| **Communication interface** | Incremental |
| **Communication Interface detail** | HTL / Push pull |
| **Number of signal channels** | 6-channel |
| **Initialization time** | < 50 ms |
| **Output frequency** | ≤ 300 kHz |
| **Load current** | ≤ 40 mA, per channel |
| **Operating current** | ≤ 50 mA (without load) |
| **Power consumption** | ≤ 0.85 W |

### Electronics

| | |
|---|---|
| **Connection type** | Male connector, M23, 12-pin, radial |
| **Supply voltage** | 5 ... 30 V |
| **Reference signal, position** | 90°, electric, logically gated with A and B |
| **Reverse polarity protection** | ✓ |

| | |
|---|---|
| **Short-circuit protection of the outputs** | ✓ |

## Mechanics

| | |
|---|---|
| **Mechanical design** | Through hollow shaft |
| **Shaft diameter** | 30 mmFront clamp [1] |
| **Flange type / stator coupling** | 1-sided stator coupling with slot available for order as accessory |
| **Weight** | 650 g |
| **Shaft material** | Aluminum |
| **Flange material** | ZAMAC die cast |
| **Housing material** | ZAMAC die cast |
| **Shaft sealing ring material** | FKM70 |
| **Start up torque** | 6 Ncm (+20 °C) |
| **Operating torque** | 5 Ncm (+20 °C) |
| **Permissible shaft loading** | 100 N (radial)<br>100 N (axial) |
| **Operating speed** | ≤ 3,600 $min^{-1}$ |
| **Moment of inertia of the rotor** | 408 $gcm^2$ |
| **Bearing lifetime** | 10^9 revolutions |

[1] Collets (shaft reducer) available as accessories to reduce shaft sizes under 30 mm / 42 mm.

## Ambient data

| | |
|---|---|
| **EMC** | According to EN 61000-6-2 and EN 61000-6-3 |
| **Enclosure rating** | IP65 (IEC 60529) |
| **Permissible relative humidity** | 98 % (Condensation not permitted) |
| **Operating temperature range** | –25 °C ... +85 °C |
| **Storage temperature range** | –25 °C ... +85 °C, without package |
| **Resistance to shocks** | 250 g, 6 ms (EN 60068-2-27) |
| **Resistance to vibration** | 10 g, 5 Hz ... 2,000 Hz (EN 60068-2-6) |

## Classifications

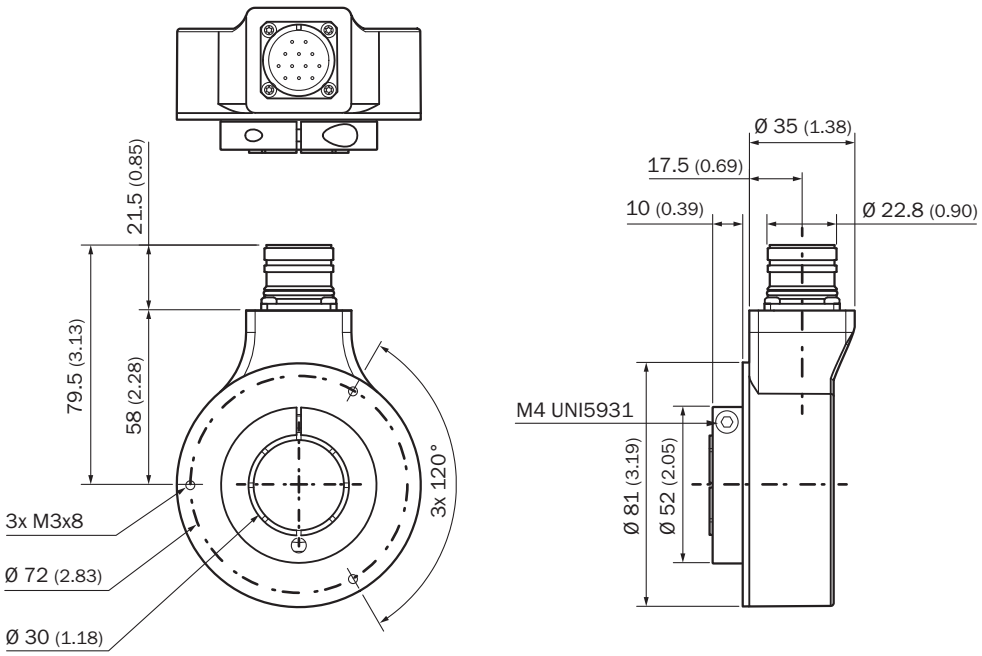
| | |
|---|---|
| **ECLASS 5.0** | 27270501 |
| **ECLASS 5.1.4** | 27270501 |
| **ECLASS 6.0** | 27270590 |
| **ECLASS 6.2** | 27270590 |
| **ECLASS 7.0** | 27270501 |
| **ECLASS 8.0** | 27270501 |
| **ECLASS 8.1** | 27270501 |
| **ECLASS 9.0** | 27270501 |
| **ECLASS 10.0** | 27270501 |
| **ECLASS 11.0** | 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 |

## Certificates

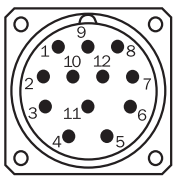
| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **UK declaration of conformity** | ✓ |
| **ACMA declaration of conformity** | ✓ |
| **China-RoHS** | ✓ |
| **cRUus certificate** | ✓ |

## Dimensional drawing Bore hole size 30 mm, M23 male connector




Dimensions in mm (inch)

## PIN assignment



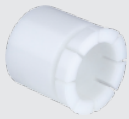
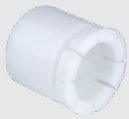
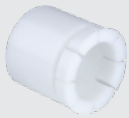
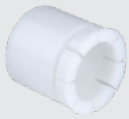
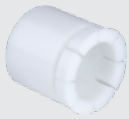
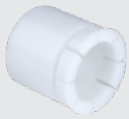

| Wire colors (cable connection) | PINMale connector M12, 8-pin | PINMale connector M23, 12-pin | PINMS male connector, 10-pin | Signal | Explanation |
|---|---|---|---|---|---|
| Brown | 1 | 6 | H | A- | Signal cable |
| White | 2 | 5 | A | A | Signal cable |
| Black | 3 | 1 | I | B- | Signal cable |
| Pink | 4 | 8 | B | B | Signal cable |

| Wire colors (cable connection) | PINMale connector M12, 8-pin | PINMale connector M23, 12-pin | PINMS male connector, 10-pin | Signal | Explanation |
|---|---|---|---|---|---|
| Yellow | 5 | 4 | J | Z- | Signal cable |
| Purple | 6 | 3 | C | Z | Signal cable |
| Blue | 7 | 10 | F | GND | Ground connection |
| Red | 8 | 12 | D | $+U_S$ | Supply voltage |
| - | - | 2 | E | N.c. | Not connected |
| - | - | 7 | - | N.c. | Not connected |
| - | - | - | G | Housing | Housing |
| - | - | 9 | - | N.c. | Not connected |
| - | - | 11 | - | N.c. | Not connected |
| Screen | – | – | – | Screen | Screen connected to housing on encoder side |

## Recommended accessories

Other models and accessories ➜ www.sick.com/DGS80_90

| | Brief description | Type | part no. |
|---|---|---|---|
| Mounting systems | | | |
|  | • **Product family:** Stator couplings<br>• **Description:** 1-sided stator coupling, slot, 115 mm<br>• **Details:** Stainless steel 1.4301 (AISI 304)<br>• **Items supplied:** 1 x stator coupling, 3 x M3 screws, 1 x insulating washer for stator coupling | DGS80-TETHER-A | 2122697 |
|  | • **Product family:** Stator couplings<br>• **Description:** 1-sided stator coupling, slot, 84 mm<br>• **Details:** Stainless steel 1.4301 (AISI 304)<br>• **Items supplied:** 1 x stator coupling, 3 x M3 screws, 1 x insulating washer for stator coupling | DGS80-TETHER-B | 2122698 |
|  | • **Product segment:** Shaft adaptation<br>• **Product family:** Shaft couplings<br>• **Description:** 1-sided stator coupling, slot, 67 mm | DGS80-TETHER-C | 2135677 |

| | Brief description | Type | part no. |
|---|---|---|---|
| shaft adaptation | | | |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 1”, external diameter 30 mm | SPZ-030-01Z-M | 2123015 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 16 mm, external diameter 30 mm | SPZ-030-016-M | 2123016 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 18 mm, external diameter 30 mm | SPZ-030-018-M | 2123017 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 20 mm, external diameter 30 mm | SPZ-030-020-M | 2123018 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 24 mm, external diameter 30 mm | SPZ-030-024-M | 2123019 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 25 mm, external diameter 30 mm | SPZ-030-025-M | 2123020 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 28 mm, external diameter 30 mm | SPZ-030-028-M | 2123021 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 3/4”, external diameter 30 mm | SPZ-030-034Z-M | 2123014 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 5/8”, external diameter 30 mm | SPZ-030-058Z-M | 2123013 |
|  | • **Product segment:** Shaft adaptation<br>• **Product:** Collets<br>• **Description:** Collet for through hollow shaft, shaft diameter 1/2”, external diameter 30 mm | SPZ-030-012Z-M | 2142263 |

| | Brief description | Type | part no. |
|---|---|---|---|
| connectors and cables | | | |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 2 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G02MLA3 | 2030682 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 7 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G07MLA3 | 2030685 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 10 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G10MLA3 | 2030688 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 15 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G15MLA3 | 2030692 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 20 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G20MLA3 | 2030695 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 25 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G25MLA3 | 2030699 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 30 m, 11-wire, PUR<br>• **Description:** Incremental, shielded | DOL-2312-G30MLA3 | 2030702 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 1.5 m, 12-wire, PUR, halogen-free<br>• **Description:** Incremental, shielded | DOL-2312-G1M5MA3 | 2029212 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 3 m, 12-wire, PUR, halogen-free<br>• **Description:** Incremental, shielded | DOL-2312-G03MMA3 | 2029213 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 5 m, 12-wire, PUR, halogen-free<br>• **Description:** Incremental, shielded | DOL-2312-G05MMA3 | 2029214 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 10 m, 12-wire, PUR, halogen-free<br>• **Description:** Incremental, shielded | DOL-2312-G10MMA3 | 2029215 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 20 m, 12-wire, PUR, halogen-free<br>• **Description:** Incremental, shielded | DOL-2312-G20MMA3 | 2029216 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Incremental<br>• **Cable:** 30 m, 12-wire, PUR, halogen-free | DOL-2312-G30MMA3 | 2029217 |

| | Brief description | Type | part no. |
|---|---|---|---|
| | • **Description:** Incremental, shielded | | |
|  | • **Connection type head A:** Female connector, M23, 12-pin, straight, A-coded<br>• **Signal type:** HIPERFACE®, SSI, Incremental<br>• **Description:** HIPERFACE®, shieldedSSIIncremental<br>• **Connection systems:** Solder connection | DOS-2312-G02 | 2077057 |
|  | • **Connection type head A:** Female connector, M23, 12-pin, angled, A-coded<br>• **Signal type:** HIPERFACE®, SSI, Incremental<br>• **Description:** HIPERFACE®, shieldedSSIIncremental<br>• **Connection systems:** Solder connection | DOS-2312-W01 | 2072580 |

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