



DGS80B-TYH404096

DGS80

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|------------------|----------|
| DGS80B-TYH404096 | 1118717 |

Other models and accessories → www.sick.com/DGS80

Detailed technical data

Performance

| | |
|---------------------------------|-------------------------------------|
| Pulses per revolution | 4,096 |
| Measuring step | 90°, electric/pulses per revolution |
| Measuring step deviation | ± 15° electrical |
| Duty cycle | ≤ 0.5 ± 15 % |

Interfaces

| | |
|---------------------------------------|------------------------|
| Communication interface | Incremental |
| Communication Interface detail | TTL / RS-422 |
| 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 |

Electrical data

| | |
|--|---|
| Connection type | Male connector, MS, 10-pin, radial |
| Supply voltage | 4.5 ... 30 V DC |
| Reference signal, position | 90°, electric, logically gated with A and B |
| Reverse polarity protection | ✓ |
| Short-circuit protection of the outputs | ✓ |
| MTTFd: 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.

Mechanical data

| | |
|---------------------------------------|--|
| Mechanical design | Through hollow shaft |
| Shaft diameter | 42 mm 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 | 160 N (radial) 100 N (axial) |
| Operating speed | ≤ 3,600 min ⁻¹ |
| Moment of inertia of the rotor | 877 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

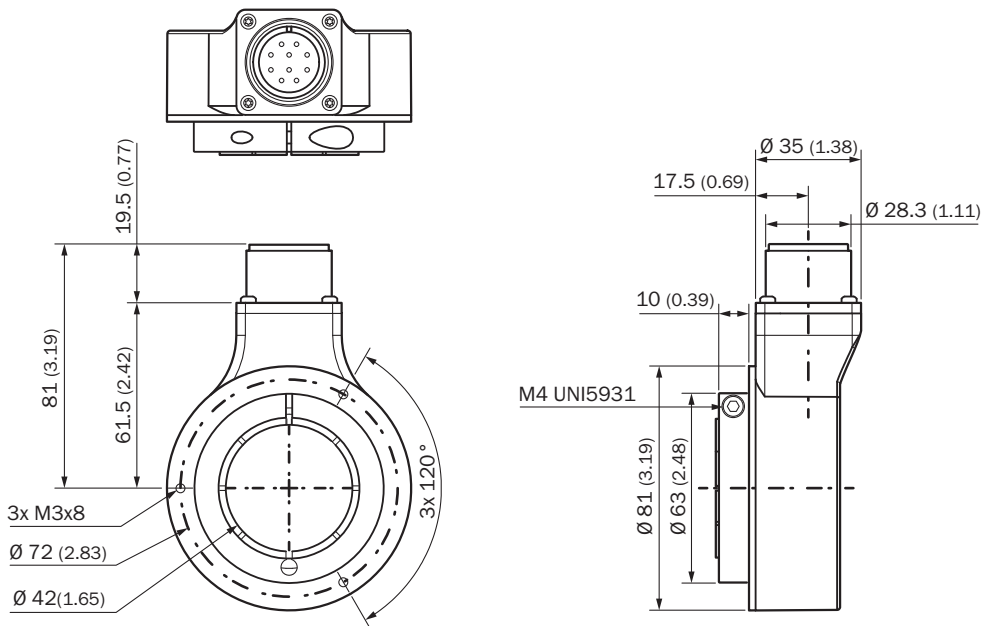
| | |
|---------------------|----------|
| ECLASS 5.0 | 27270501 |
| ECLASS 5.1.4 | 27270501 |
| ECLASS 6.0 | 27270590 |
| ECLASS 6.2 | 27270590 |
| ECLASS 7.0 | 27270501 |
| ECLASS 8.0 | 27270501 |
| ECLASS 8.1 | 27270501 |
| ECLASS 9.0 | 27270501 |
| ECLASS 10.0 | 27270501 |
| ECLASS 11.0 | 27270501 |
| ECLASS 12.0 | 27270501 |
| ETIM 5.0 | EC001486 |
| ETIM 6.0 | EC001486 |
| ETIM 7.0 | EC001486 |
| ETIM 8.0 | EC001486 |

UNSPSC 16.0901

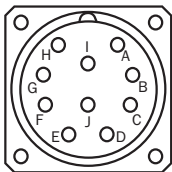
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Dimensional drawing (Dimensions in mm (inch))

Bore hole size 42 mm, MS male connector



PIN assignment







| Wire colors (cable connection) | PIN Male connector M12, 8-pin | PIN Male connector M23, 12-pin | PIN MS 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 |
| 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 |

| Wire colors (cable connection) | PIN Male connector M12, 8-pin | PIN Male connector M23, 12-pin | PIN MS male connector, 10-pin | Signal | Explanation |
|--------------------------------|-------------------------------|--------------------------------|-------------------------------|--------|---|
| - | - | 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

| | Brief description | Type | Part no. |
|---|---|----------------|----------|
| Flanges | | | |
|  | 1-sided stator coupling, slot, 115 mm, stainless steel 1.4301 (AISI 304), 1 x stator coupling, 3 x M3 screws, 1 x insulating washer for stator coupling | DGS80-TETHER-A | 2122697 |
|  | 1-sided stator coupling, slot, 84 mm, stainless steel 1.4301 (AISI 304), 1 x stator coupling, 3 x M3 screws, 1 x insulating washer for stator coupling | DGS80-TETHER-B | 2122698 |
|  | 1-sided stator coupling, slot, 67 mm, stainless steel 1.4301 (AISI 304), 1 x stator coupling, 3 x M3 screws | DGS80-TETHER-C | 2135677 |
| Shaft adaptation | | | |
|  | Collet for through hollow shaft, shaft diameter 30 mm, external diameter 42 mm | SPZ-042-030-M | 2123008 |
| | Collet for through hollow shaft, shaft diameter 32 mm, external diameter 42 mm | SPZ-042-032-M | 2123009 |
| | Collet for through hollow shaft, shaft diameter 35 mm, external diameter 42 mm | SPZ-042-035-M | 2123010 |
| | Collet for through hollow shaft, shaft diameter 38 mm, external diameter 42 mm | SPZ-042-038-M | 2123011 |
| | Collet for through hollow shaft, shaft diameter 40 mm, external diameter 42 mm | SPZ-042-040-M | 2123012 |

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Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

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