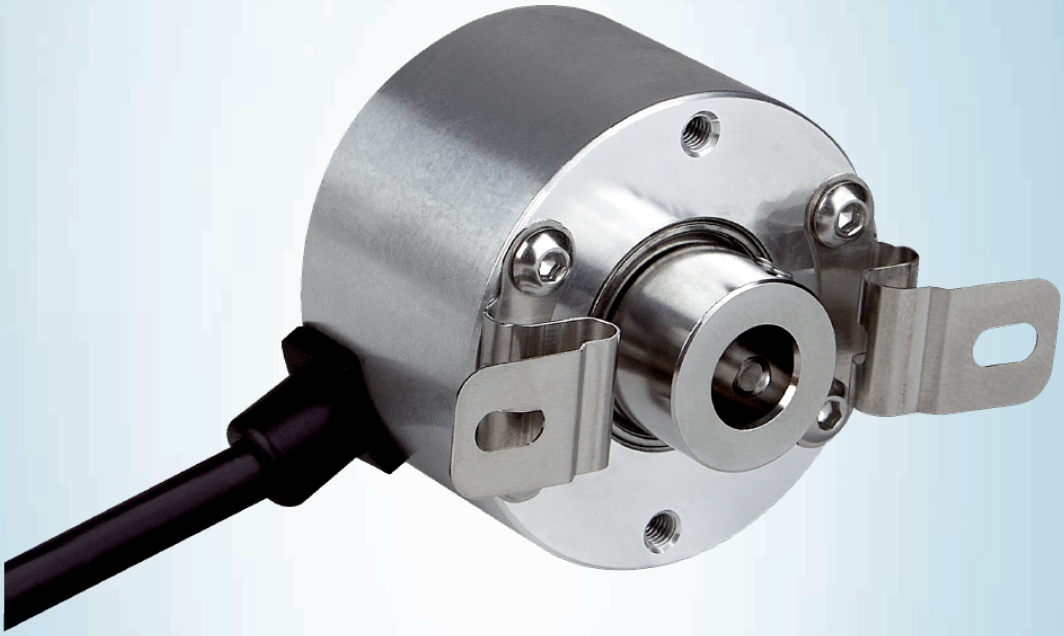
Product data sheet



# DLS40E-BEGV00600

## DLS40

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

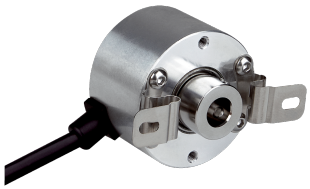


Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| DLS40E-BEGV00600 | 1128557 |

Other models and accessories ➜ www.sick.com/DLS40

## Detailed technical data

### Safety-related parameters

| | |
|---|---|
| **$MTTF_D$ (mean time to dangerous failure)** | 600 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** | 600 |
| **Measuring step** | 90°, electric/pulses per revolution |
| **Duty cycle** | ≤ 0.5 ± 10 % |

### Interfaces

| | |
|---|---|
| **Communication interface** | Incremental |
| **Communication Interface detail** | HTL / Push pull |
| **Number of signal channels** | 3 channel |
| **Output frequency** | ≤ 150 kHz |
| **Load current** | ≤ 30 mA |
| **Power consumption** | ≤ 2 W (without load) |

### Electrical data

| | |
|---|---|
| **Connection type** | Cable, 5-wire, radial, 2 m |
| **Supply voltage** | 10 ... 27 V |
| **Reference signal, number** | 1 |
| **Reverse polarity protection** | ✓ |
| **Short-circuit protection of the outputs** | ✓ [1] |

[1] Protection against short circuit to GND and $U_S$. Short-circuit resistance is only guaranteed when Us and GND are connected correctly.

### Mechanical data

| | |
|---|---|
| **Mechanical design** | Blind hollow shaft |
| **Shaft diameter** | 12 mm |
| **Weight** | Approx. 170 g [1] |

[1] Relates to encoders with 2 m cable connection.
[2] Allow for self-heating of 1.3 K per 1,000 rpm when designing the operating temperature range.
[3] No permanent operation. Decreasing signal quality.

| | |
|---|---|
| **Shaft material** | Stainless steel |
| **Flange material** | Aluminum |
| **Housing material** | Aluminum |
| **Material, cable** | PVC |
| **Start up torque** | 0.5 Ncm |
| **Operating torque** | 0.3 Ncm |
| **Permissible movement static** | ± 0.3 mm (radial)<br>± 0.5 mm (axial) |
| **Permissible movement dynamic** | ± 0.1 mm (radial)<br>± 0.2 mm (axial) |
| **Operating speed** | 6,000 $min^{-1}$ [2] |
| **Maximum operating speed** | ≤ 8,000 $min^{-1}$ [3] |
| **Moment of inertia of the rotor** | 24.6 $gcm^2$ |
| **Bearing lifetime** | 2.0 x 10^9 revolutions |
| **Angular acceleration** | ≤ 500,000 $rad/s^2$ |

[1] Relates to encoders with 2 m cable connection.
[2] Allow for self-heating of 1.3 K per 1,000 rpm when designing the operating temperature range.
[3] No permanent operation. Decreasing signal quality.

## Ambient data

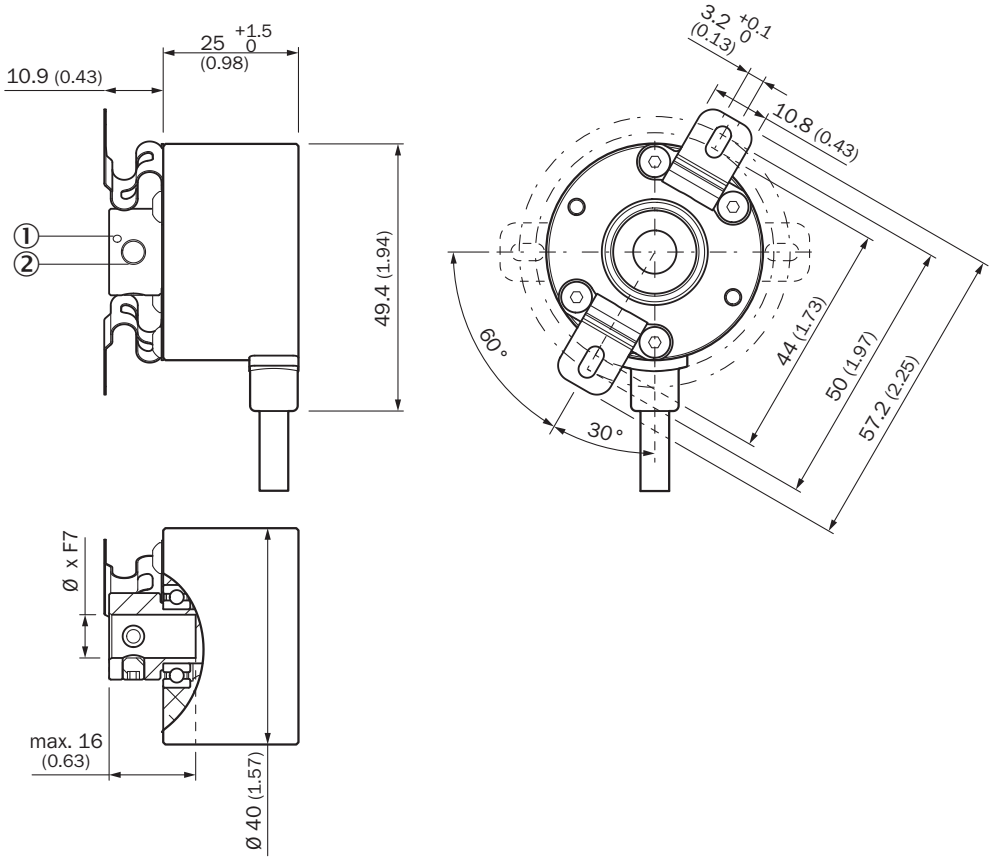
| | |
|---|---|
| **EMC** | According to EN 61000-6-2 and EN 61000-6-3 |
| **Permissible relative humidity** | 90 % (Condensation not permitted) |
| **Operating temperature range** | –10 °C ... +70 °C |
| **Storage temperature range** | –25 °C ... +85 °C |
| **Resistance to shocks** | 100 g, 6 ms (EN 60068-2-27) |
| **Resistance to vibration** | 20 g, 10 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 |

## Dimensional drawing (Dimensions in mm (inch))

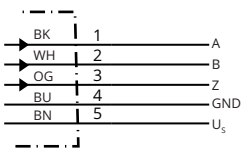
Blind hollow shaft




① Start position of the Z-pulse
② 2x M4 threaded pin hex key screw size 2.0

| Type<br>Blind hollow shaft | Shaft diameter XF7 |
|---|---|
| DLS40E-BAxxxxxxx | 6 mm |
| DLS40E-BBxxxxxxx | 8 mm |
| DLS40E-BDxxxxxxx | 10 mm |
| DLS40E-BExxxxxxx | 12 mm |

## PIN assignment

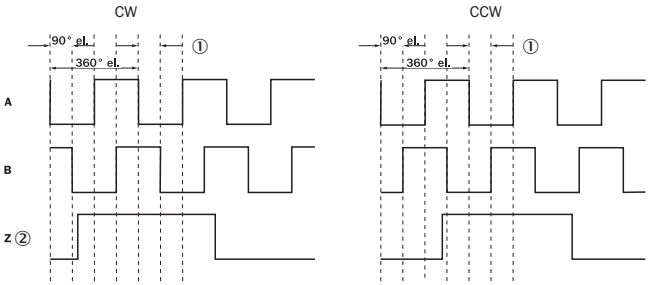



| Wire colors (cable connection) | Signal | Description |
|---|---|---|
| Brown | $U_S$ | Supply voltage |
| Blue | GND | Ground connection |
| Black | A | Signal cable |

| Wire colors (cable connection) | Signal | Description |
|---|---|---|
| White | B | Signal cable |
| Orange | Z | Signal cable |

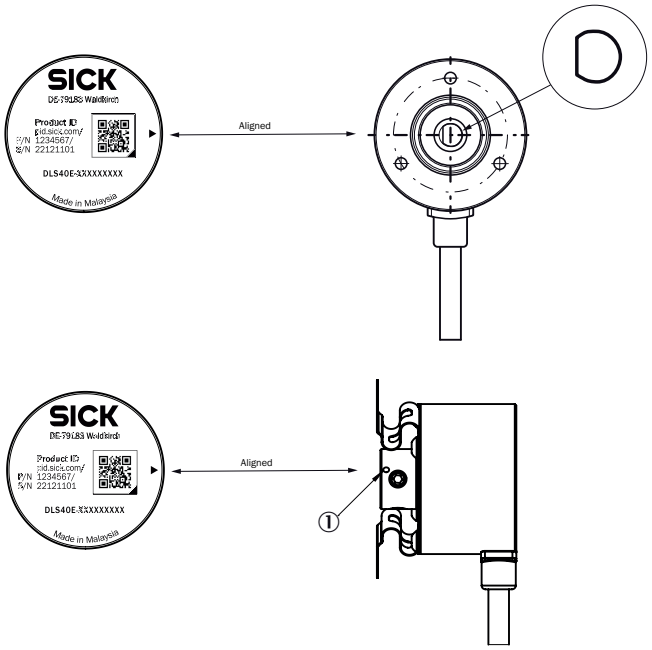
## Diagrams

HTL/Push pull




① Measuring step
② Only as reference

## Operation note




You can see the position with the mark on the rear side of the encoder
① Zero pulse mark on housing

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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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