

# DLS40E-S3GZ00S10

DLS40

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
DLS40E-S3GZ00S10	1133633

Other models and accessories → [www.sick.com/DLS40](http://www.sick.com/DLS40)

Illustration may differ



### Detailed technical data

#### Features

<b>Special device</b>	✓
<b>Specialty</b>	6 signal channels Connection cable 1.5 m
<b>Standard reference device</b>	DLS40E-S3GV01024, 1109606

#### Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	600 years (EN ISO 13849-1) <sup>1)</sup>
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<sup>1)</sup> 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

<b>Pulses per revolution</b>	1,024
<b>Measuring step</b>	90°, electric/pulses per revolution
<b>Duty cycle</b>	≤ 0.5 ± 10 %

#### Interfaces

<b>Communication interface</b>	Incremental
<b>Communication Interface detail</b>	HTL / Push pull
<b>Number of signal channels</b>	6-channel
<b>Output frequency</b>	≤ 150 kHz
<b>Load current</b>	≤ 30 mA
<b>Power consumption</b>	≤ 2 W (without load)

#### Electronics

<b>Connection type</b>	Special version
<b>Connection type Detail</b>	Connection cable 1.5 m
<b>Supply voltage</b>	10 ... 27 V
<b>Reference signal, number</b>	1
<b>Reverse polarity protection</b>	✓

<sup>1)</sup> Protection against short circuit to GND and U<sub>S</sub>. Short-circuit resistance is only guaranteed when U<sub>S</sub> and GND are connected correctly.

**Short-circuit protection of the outputs** ✓ <sup>1)</sup>

<sup>1)</sup> Protection against short circuit to GND and U<sub>S</sub>. Short-circuit resistance is only guaranteed when U<sub>S</sub> and GND are connected correctly.

## Mechanics

<b>Mechanical design</b>	Solid shaft, face mount flange
<b>Shaft diameter</b>	6 mm With flat
<b>Shaft length</b>	12 mm
<b>Weight</b>	Approx. 130 g <sup>1)</sup>
<b>Shaft material</b>	Stainless steel
<b>Flange material</b>	Aluminum
<b>Housing material</b>	Aluminum
<b>Material, cable</b>	PVC
<b>Start up torque</b>	0.3 Ncm
<b>Operating torque</b>	0.2 Ncm
<b>Permissible shaft loading</b>	40 N (radial) <sup>2)</sup> 20 N (axial)
<b>Operating speed</b>	6,000 min <sup>-1</sup> <sup>3)</sup>
<b>Maximum operating speed</b>	≤ 8,000 min <sup>-1</sup> <sup>4)</sup>
<b>Moment of inertia of the rotor</b>	7.6 gcm <sup>2</sup>
<b>Bearing lifetime</b>	2.0 x 10 <sup>9</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> Relates to encoders with 2 m cable connection.

<sup>2)</sup> Higher values are possible using limited bearing life.

<sup>3)</sup> Allow for self-heating of 1.3 K per 1,000 rpm when designing the operating temperature range.

<sup>4)</sup> No permanent operation. Decreasing signal quality.

## Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating</b>	IP50
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Operating temperature range</b>	-10 °C ... +70 °C
<b>Storage temperature range</b>	-25 °C ... +85 °C
<b>Resistance to shocks</b>	100 g, 6 ms (EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

## Certificates

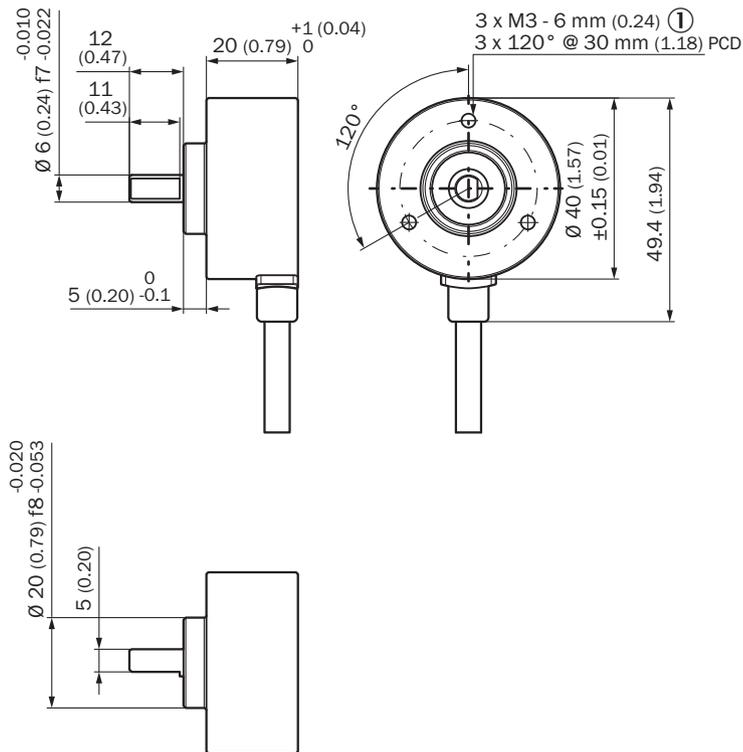
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

## Classifications

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

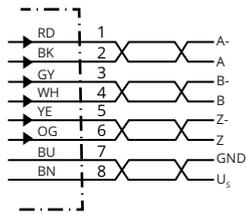
### Dimensional drawing Solid shaft



Dimensions in mm (inch)

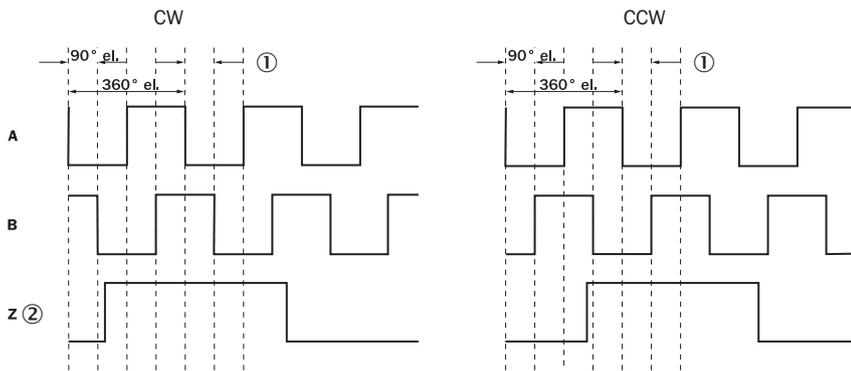
① depth

### PIN assignment



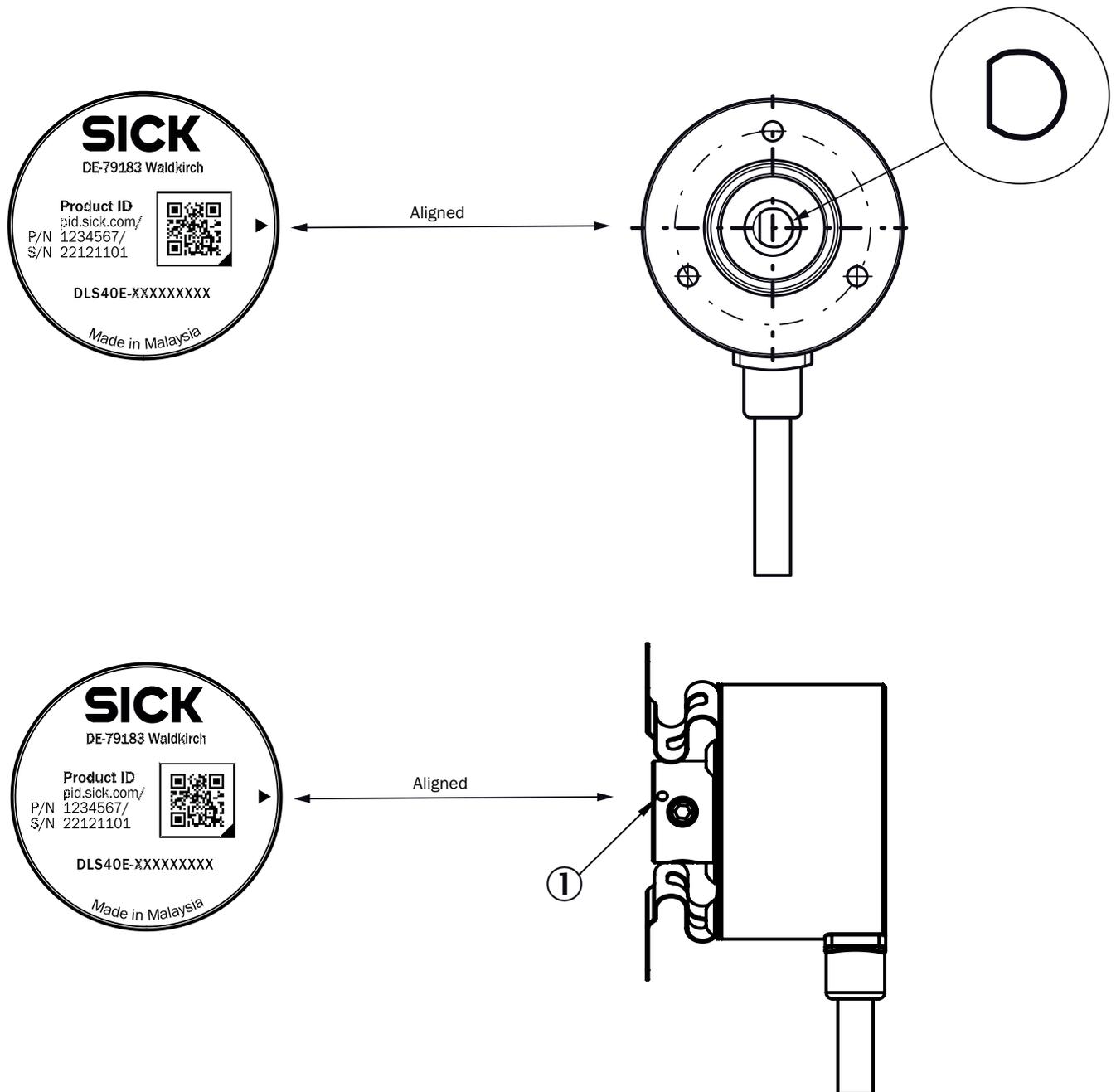
Wire colors (cable connection)	Signal	Description
Brown	U <sub>s</sub>	Supply voltage
Blue	GND	Ground connection
Black	A	Signal cable
White	B	Signal cable
Orange	Z	Signal cable
Red	A-	Signal cable
Gray	B-	Signal cable
Yellow	Z-	Signal cable

### 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

## 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](http://www.sick.com)