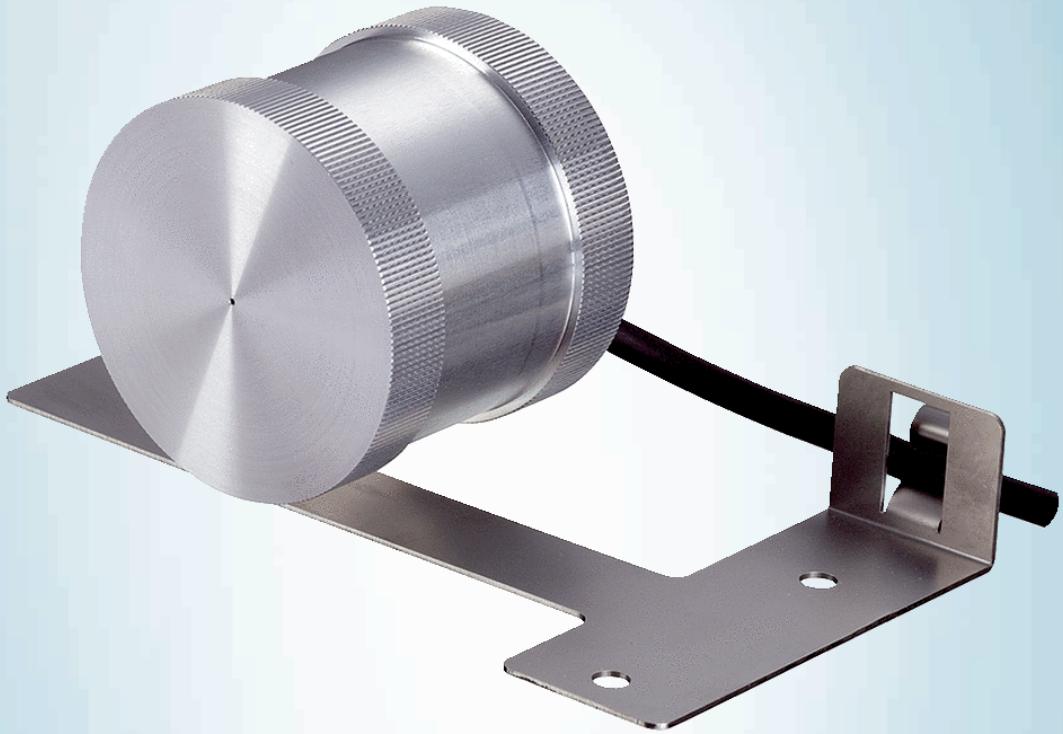
Online data sheet



# DKV60-E1P00200

DKV60

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.

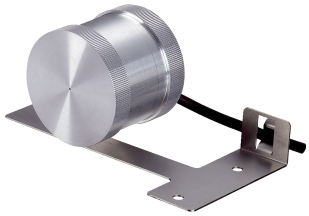


Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| DKV60-E1P00200 | 1036071 |

Other models and accessories ➜ www.sick.com/DKV60

## Detailed technical data

### Performance

| | |
|---|---|
| **Pulses per revolution** | 200 |
| **Resolution in pulses/mm** | 1 |
| **Measuring increment (resolution in mm/pulse)** | 1 |
| **Error limits** | ± 0.5 mm/m, subject to the measuring wheel (wheel + surface) |
| **Initialization time** | 40 s |

### Electrical data

| | |
|---|---|
| **Communication interface** | Incremental |
| **Communication Interface detail** | HTL / Push pull |
| **Supply voltage** | 10 V ... 30 V |
| **Connection type** | Cable, 8-wire, with male connector, M12, 8-pin, universal, 1.5 m |
| **Load current max.** | 30 mA |
| **Maximum output frequency** | ≤ 200 kHz |
| **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] |
| **MTTFd: mean time to dangerous failure** | 600 years (EN ISO 13849-1) [2] |

[1] Short-circuit opposite to another channel, US or GND permissable for maximum 30 s.

[2] 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

| | |
|---|---|
| **Measuring wheel circumference** | 200 mm |
| **Measuring wheel surface** | Knurled [1] |
| **Spring arm design** | 69.5 mm spring arm |
| **Mass** | 420 g |

[1] The surface of a measuring wheel is subject to wear. This depends on contact pressure, acceleration behavior in the application, traversing speed, measurement surface, mechanical alignment of the measuring wheel, temperature, and ambient conditions. We recommend you regularly check the condition of the measuring wheel and replace as required.

[2] When measured from the top of the measuring surface.

| | |
|---|---|
| **Encoder material** | |
| Shaft | Stainless steel |
| Flange | Zinc cast |
| Housing | Zinc cast |
| Cable | PUR |
| **Spring arm mechanism material** | |
| Spring element | Spring steel, anti-corrosive |
| Measuring wheel, spring arm | Aluminum |
| **Start up torque** | 0.6 Ncm (at 20 °C) |
| **Operating torque** | 0.4 Ncm (at 20 °C) |
| **Maximum operating speed** | 1,000 $min^{-1}$ |
| **Operating speed** | 1,500 $min^{-1}$ |
| **Bearing lifetime** | 2 x 10^9 revolutions |
| **Maximum travel/deflection of spring arm** | 8 mm At 14 N spring travel |
| **Recommended pretension** | 8 N At 4 mm deflection [2] |
| **Max. permissible working area for the spring (continuous operation)** | ± 1.5 mm |
| **Recommended spring deflection** | 2 mm ... 8 mm |

[1] The surface of a measuring wheel is subject to wear. This depends on contact pressure, acceleration behavior in the application, traversing speed, measurement surface, mechanical alignment of the measuring wheel, temperature, and ambient conditions. We recommend you regularly check the condition of the measuring wheel and replace as required.

[2] When measured from the top of the measuring surface.

## Ambient data

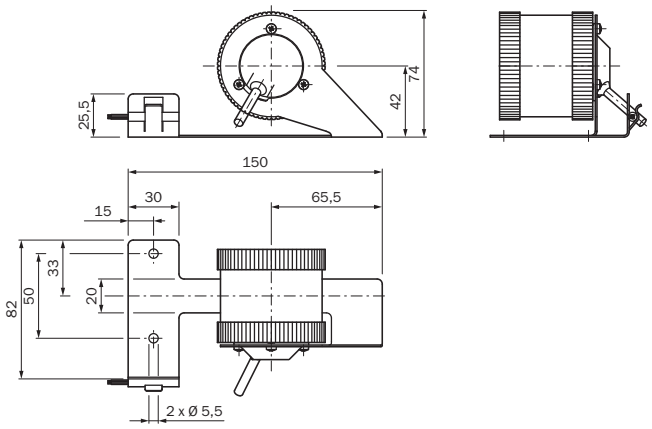
| | |
|---|---|
| **EMC** | According to EN 61000-6-2 and EN 61000-6-3 |
| **Permissible relative humidity** | 90 % (condensation of the optical scanning not permitted) |
| **Operating temperature range** | –10 °C ... +60 °C |
| **Storage temperature range** | –40 °C ... +70 °C, without package |

## Classifications

| | |
|---|---|
| **ECl@ss 5.0** | 27270501 |
| **ECl@ss 5.1.4** | 27270501 |
| **ECl@ss 6.0** | 27270590 |
| **ECl@ss 6.2** | 27270590 |
| **ECl@ss 7.0** | 27270501 |
| **ECl@ss 8.0** | 27270501 |
| **ECl@ss 8.1** | 27270501 |
| **ECl@ss 9.0** | 27270501 |
| **ETIM 5.0** | EC001486 |
| **ETIM 6.0** | EC001486 |
| **UNSPSC 16.0901** | 41112113 |

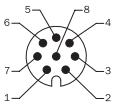
## Dimensional drawing (Dimensions in mm (inch))

Measuring drum, knurled surface



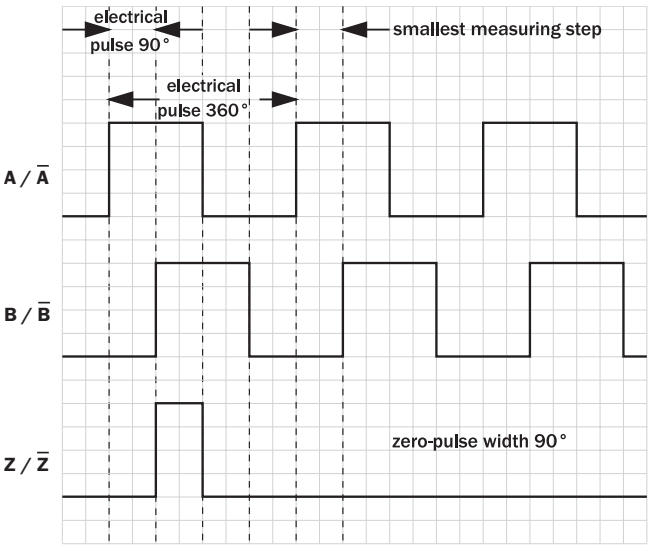

## PIN assignment

View of the connector side of housing




| PIN, 8-pin, connector M12 | Color of wires | Signal TTL, HTL | Explanation |
|---|---|---|---|
| 1 | Brown | $\overline{A}$ | Signal line |
| 2 | White | A | Signal line |
| 3 | Black | $\overline{B}$ | Signal line |
| 4 | Pink | B | Signal line |
| 5 | Yellow | $\overline{Z}$ | Signal line |
| 6 | Lilac | Z | Signal line |
| 7 | Blue | GND | Ground connection of the encoder |
| 8 | Red | $+U_s$ | Supply voltage, potential free to the housing |
| Screen | Screen | Screen | Screen connected to encoder housing |

## Signal outputs



# 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