

# DUV60E-Z4KZHAZAS06

DUV60

MEASURING WHEEL ENCODERS

**SICK**  
Sensor Intelligence.

Illustration may differ

### Ordering information

| Type               | Part no. |
|--------------------|----------|
| DUV60E-Z4KZHAZAS06 | 1090984  |

Other models and accessories → [www.sick.com/DUV60](http://www.sick.com/DUV60)



### Detailed technical data

#### Features

|                                  |   |
|----------------------------------|---|
| <b>Special device</b>            | ✓   |
| <b>Specialty</b>                 | 1500 pulses per revolution<br>Includes 5 m mating cable (part no.: 6032867, DOL-1208-G05MAC1)<br>Mounting holes in bracket compatible with anti anti-static brush |
| <b>Standard reference device</b> | DUV60E-D4KCHADA, 1090983  |

#### Performance

|                                 |                                    |
|---------------------------------|------------------------------------|
| <b>Pulses per revolution</b>    | 1,500                              |
| <b>Resolution in pulses/mm</b>  | 5 pulses/mm                        |
| <b>Measuring step</b>           | 90° electric/pulses per revolution |
| <b>Measuring step deviation</b> | ± 18°, / pulses per revolution     |
| <b>Error limits</b>             | Measuring step deviation x 3       |
| <b>Duty cycle</b>               | 0.5 ± 5 %                          |
| <b>Initialization time</b>      | < 5 ms <sup>1)</sup>               |

<sup>1)</sup> Valid positional data can be read once this time has elapsed.

#### Interfaces

|                                       |                                |
|---------------------------------------|--------------------------------|
| <b>Communication interface</b>        | Incremental                    |
| <b>Communication Interface detail</b> | HTL                            |
| <b>Number of signal channels</b>      | 6-channel, A, AN, B, BN, Z, ZN |

#### Electrical data

|  |  |
|--|--|
| <b>Operating power consumption (no load)</b> | 120 mA   |
| <b>Connection type</b>                       | Cable, with male connector, M12, 8-pin, universal, 5 m |
| <b>Power consumption max. without load</b>   | ≤ 1.25 W   |
| <b>Supply voltage</b>                        | 4.75 V ... 30 V  |
| <b>Load current max.</b>                     | ≤ 30 mA, per channel                                   |
| <b>Maximum output frequency</b>              | 60 kHz   |
| <b>Reference signal, number</b>              | 1  |
| <b>Reference signal, position</b>            | 90°, electric, logically gated with A and B            |

<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.

|  |  |
|--|--|
| <b>Reverse polarity protection</b>             | ✓  |
| <b>Short-circuit protection of the outputs</b> | ✓  |
| <b>MTTFd: mean time to dangerous failure</b>   | 275 years (EN ISO 13849-1) <sup>1)</sup> |

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## Mechanical data

|  |   |
|--|---|
| <b>Measuring wheel circumference</b>                                       | 300 mm                                  |
| <b>Measuring wheel surface</b>   | Smooth plastic (urethane) <sup>1)</sup> |
| <b>Spring arm design</b>   | Spring tension, under-belt flange mount |
| <b>Mass</b>  | 0.9 kg <sup>2)</sup>                    |
| <b>Encoder material</b>  |   |
| Shaft  | Stainless steel                         |
| Flange   | Aluminum                                |
| Housing  | Aluminum                                |
| Cable  | PVC                                     |
| <b>Spring arm mechanism material</b>                                       |   |
| Spring element   | Spring steel                            |
| Measuring wheel, spring arm  | Aluminum                                |
| Yoke   | Aluminum                                |
| Counterweight  | Aluminum                                |
| <b>Start up torque</b>   | 0.5 Ncm                                 |
| <b>Operating torque</b>  | 0.4 Ncm                                 |
| <b>Operating speed</b>   | 1,500 min <sup>-1</sup>                 |
| <b>Bearing lifetime</b>  | 3.6 x 10 <sup>9</sup> revolutions       |
| <b>Maximum travel/deflection of spring arm</b>                             | 40 mm <sup>3)</sup>                     |
| <b>Recommended pretension</b>  | 20 mm <sup>3)</sup>                     |
| <b>Max. permissible working area for the spring (continuous operation)</b> | ± 10 mm                                 |

<sup>1)</sup> 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.

<sup>2)</sup> Based on an encoder with a plug connector output and urethane rollers, no mounting necessary (arm mount).

<sup>3)</sup> Only applies to variants with spring arm mounting.

## Ambient data

|                                      |  |
|--------------------------------------|--|
| <b>EMC</b>                           | According to EN 61000-6-2 and EN 61000-6-3 |
| <b>Enclosure rating</b>              | IP65                                       |
| <b>Permissible relative humidity</b> | 90 % (Condensation not permitted)          |
| <b>Operating temperature range</b>   | -30 °C ... +70 °C                          |
| <b>Storage temperature range</b>     | -40 °C ... +75 °C                          |

## Classifications

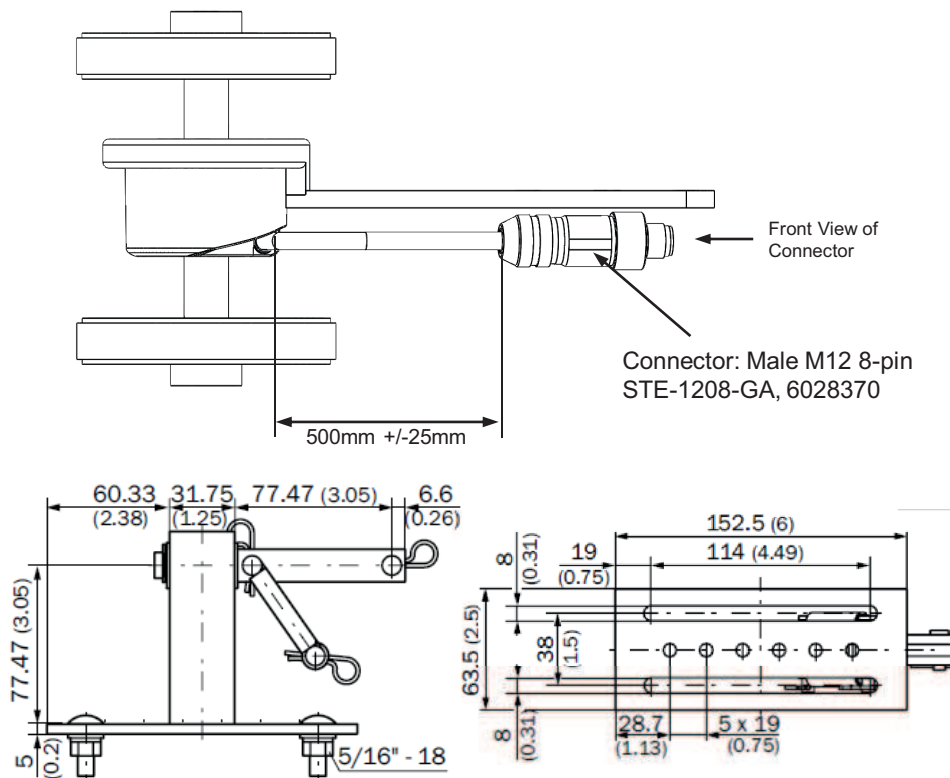
|                     |          |
|---------------------|----------|
| <b>eCl@ss 5.0</b>   | 27270501 |
| <b>eCl@ss 5.1.4</b> | 27270501 |

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## MEASURING WHEEL ENCODERS

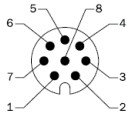
|                       |          |
|-----------------------|----------|
| <b>eCl@ss 6.0</b>     | 27270590 |
| <b>eCl@ss 6.2</b>     | 27270590 |
| <b>eCl@ss 7.0</b>     | 27270501 |
| <b>eCl@ss 8.0</b>     | 27270501 |
| <b>eCl@ss 8.1</b>     | 27270501 |
| <b>eCl@ss 9.0</b>     | 27270501 |
| <b>eCl@ss 10.0</b>    | 27270790 |
| <b>eCl@ss 11.0</b>    | 27270707 |
| <b>eCl@ss 12.0</b>    | 27270504 |
| <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 (Dimensions in mm (inch))



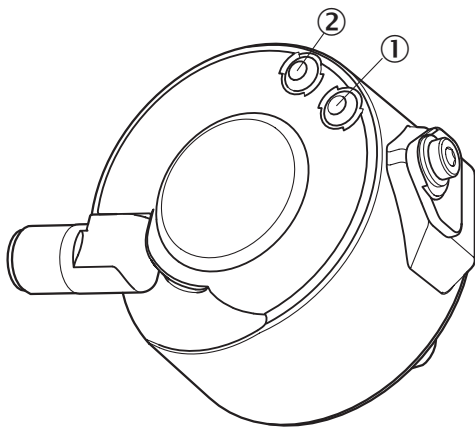
## PIN assignment

| M12 8-pin | Signal | Wire Color | Description               |
|-----------|--------|------------|---------------------------|
| 1         | A-     | Brown      | Channel A complement      |
| 2         | A      | White      | Channel A                 |
| 3         | B-     | Black      | Channel B complement      |
| 4         | B      | Pink       | Channel B                 |
| 5         | Z-     | Yellow     | Marker channel complement |
| 6         | Z      | Violet     | Marker channel            |
| 7         | GND    | Blue       | Ground connection (-)     |
| 8         | Us     | Red        | Supply voltage (+)        |
| -         | Case   | Case       | Case ground               |
| -         | Shield | Shield     | Shielding                 |



## Adjustments

Status indicator LED



- ① Signal
- ② Fault/Power

## 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:

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