



DUV60E-32KCAAEA

DUV60

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | part no. |
|-----------------|----------|
| DUV60E-32KCAAEA | 1086889 |

Other models and accessories → www.sick.com/DUV60

Detailed technical data

Safety-related parameters

| | |
|--|--|
| MTTF_D (mean time to dangerous failure) | 275 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 | 1 ... 240 ¹⁾ |
| Resolution in pulses/mm | 0.125 mm/pulse to 304.8 mm/pulse (type-dependent) |
| Measuring step | 90° electric/pulses per revolution |
| Measuring step deviation | ± 18°, / pulses per revolution |
| Error limits | Measuring step deviation x 3 |
| Duty cycle | 0.5 ± 5 % |
| Initialization time | < 5 ms ²⁾ |

¹⁾ Available pulses per revolution see type code.

²⁾ Valid positional data can be read once this time has elapsed.

Interfaces

| | |
|---------------------------------------|-------------------------------|
| Communication interface | Incremental |
| Communication Interface detail | TTL / HTL |
| Parameterising data | DIP switch, selectable output |

Electronics

| | |
|--|---|
| Operating power consumption (no load) | 120 mA |
| Connection type | Male connector, M12, 8-pin, universal ¹⁾ |
| Pulses per revolution | ✓ |
| Output voltage | ✓ |
| Direction of rotation | ✓ |

¹⁾ The universal connection is rotatable so that it is possible to position the connector in the radial or axial direction.

| | |
|--|------------------------------|
| Power consumption max. without load | ≤ 1.25 W |
| Supply voltage | 4.75 V ... 30 V |
| Load current max. | ≤ 30 mA, per channel |
| Maximum output frequency | 60 kHz |
| Reference signal, number | 1 |
| Reference signal, position | 180°, electric, gated with A |
| Reverse polarity protection | ✓ |
| Short-circuit protection of the outputs | ✓ |

¹⁾ The universal connection is rotatable so that it is possible to position the connector in the radial or axial direction.

Mechanics

| | |
|--|--------------------------------------|
| Measuring wheel circumference | 300 mm |
| Measuring wheel surface | O-ring NBR70 ¹⁾ |
| Spring arm design | Spring arm, encoder on mounting side |
| Mass | 0.45 kg ²⁾ |
| Encoder material | |
| Shaft | Stainless steel |
| Flange | Aluminum |
| Housing | Aluminum |
| Cable | PVC |
| Spring arm mechanism material | |
| Spring element | Spring steel |
| Measuring wheel core | Aluminum |
| Start up torque | 1.2 Ncm |
| Operating torque | 1.1 Ncm |
| Operating speed | 1,500 min ⁻¹ |
| Bearing lifetime | 3.6 x 10 ⁹ revolutions |
| Maximum travel/deflection of spring arm | 14 mm ³⁾ |
| Recommended pretension | 10 mm ³⁾ |
| Max. permissible working area for the spring (continuous operation) | ± 3 mm |
| Service life of spring element | > 1.4 million cycles ³⁾ |

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⁾ Based on encoder with male connector.

³⁾ Only applies to variants with spring arm mounting.

Ambient data

| | |
|--------------------------------------|--|
| EMC | According to EN 61000-6-2 and EN 61000-6-3 |
| Enclosure rating | IP65 ¹⁾ |
| Permissible relative humidity | 90 % (Condensation not permitted) |

¹⁾ When the mating connector is installed and the DIP switch door is sealed with the encoder housing.

| | |
|------------------------------------|---|
| Operating temperature range | -30 °C ... +70 °C |
| Storage temperature range | -40 °C ... +75 °C |
| Resistance to shocks | 100 g (EN 60068-2-27) |
| Resistance to vibration | 30 g, 10 Hz ... 2,000 Hz (EN 60068-2-6) |

¹⁾ When the mating connector is installed and the DIP switch door is sealed with the encoder housing.

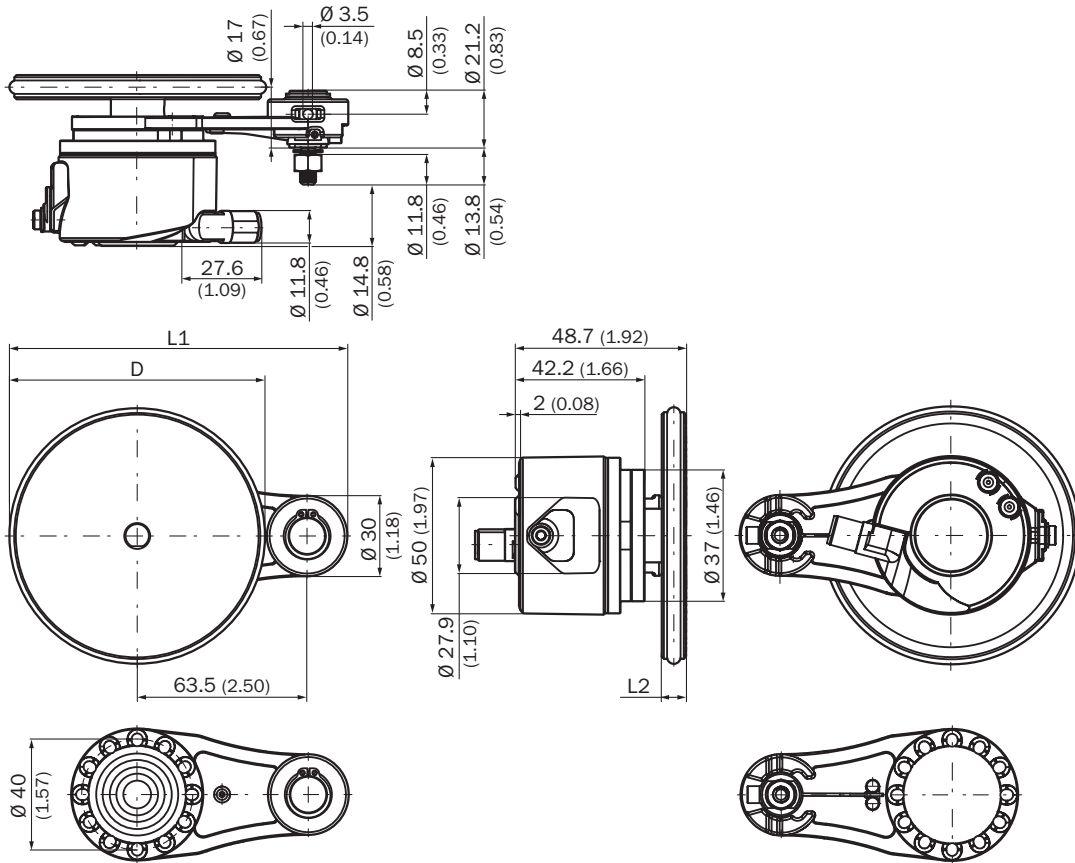
Classifications

| | |
|-----------------------|----------|
| 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 | 27270790 |
| ECLASS 11.0 | 27270707 |
| ECLASS 12.0 | 27270504 |
| ETIM 5.0 | EC001486 |
| ETIM 6.0 | EC001486 |
| ETIM 7.0 | EC001486 |
| ETIM 8.0 | EC001486 |
| UNSPSC 16.0901 | 41112113 |

Certificates

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

Dimensional drawing One measuring wheel, 63.5 mm spring arm, encoder on mounting side, male connector



Dimensions in mm (inch)

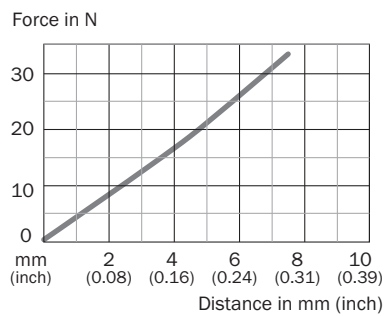
Anschlussbelegung



| Wire colors (cable connection) | Male connector M12, 4-pin | Male connector M12, 8-pin | Output function | | | | Explanation |
|--------------------------------|---------------------------|---------------------------|-----------------|--------|------------|---|-------------|
| | | | A | B | C | D | |
| Brown | - | 1 | A- | CW- | A- | A- | Signal |
| White | 4 | 2 | A | CW | A | A | Signal |
| Black | - | 3 | B- | CCW- | Direction- | B- | Signal |
| Pink | 2 | 4 | B | CCW | Direction | Fault (M12, 4-pin)B (M12, 8-pin and cable connection) | Signal |
| Yellow | - | 5 | Z- | Fault- | Fault- | | Fault- |

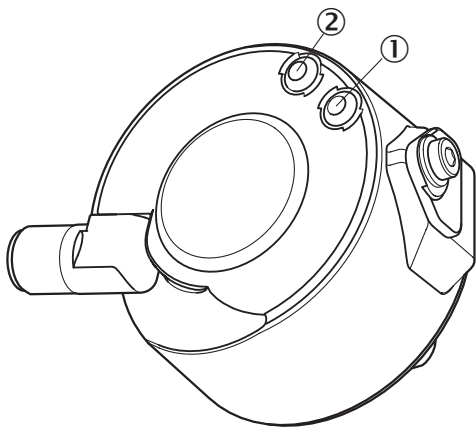
| Wire colors (cable connection) | Male connector M12, 4-pin | Male connector M12, 8-pin | Output function | | | | Explanation |
|--------------------------------|---------------------------|---------------------------|-----------------|----------------|----------------|----------------|------------------------|
| | | | A | B | C | D | |
| Violet | - | 6 | Z | Fault | Fault | Fault | Signal |
| Blue | 3 | 7 | GND | GND | GND | GND | Ground connection |
| Red | 1 | 8 | U _S | U _S | U _S | U _S | Supply voltage |
| - | - | - | Case | Case | Case | Case | Earth fault protection |
| Shielding | - | - | Shielding | Shielding | Shielding | Shielding | Shielding |

Diagrams Single wheel, 63.5 mm spring arm



- ① recommended pre-tension (10 mm)
- ② permissible working area (± 3 mm)
- ③ recommended spring deflection (2 – 13 mm)
- ④ maximum spring deflection (14 mm)

Adjustments Status indicator LED



- ① Signal
- ② Fault/Power

Recommended accessories

Other models and accessories → www.sick.com/DUV60

| | Brief description | Type | part no. |
|---|--|------------------|----------|
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Mounting bracket for encoder with spigot 36 mm | BEF-WF-MRS | 2084709 |
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> Connection type head A: Flying leads Connection type head B: Flying leads Signal type: SSI, Incremental, HIPERFACE® Items supplied: By the meter Cable: 8-wire, PUR, halogen-free Description: SSI, shielded, Incremental, HIPERFACE® | LTG-2308-MWENC | 6027529 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded, SSI Connection type head A: Female connector, M12, 8-pin, straight, A-coded Signal type: Incremental, SSI Cable: CAT5, CAT5e Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² ... 0.34 mm² | DOS-1208-GA01 | 6045001 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded, SSI Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 20 m, 8-wire, PUR, halogen-free Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants | DOL-1208-G20MAC1 | 6032869 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded, SSI Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 10 m, 8-wire, PUR, halogen-free Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants | DOL-1208-G10MAC1 | 6032868 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded, SSI Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 5 m, 8-wire, PUR, halogen-free Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants | DOL-1208-G05MAC1 | 6032867 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded, SSI Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 2 m, 8-wire, PUR, halogen-free Connection systems: Flying leads Application: Drag chain operation, Zones with oils and lubricants | DOL-1208-G02MAC1 | 6032866 |

SICK AT A GLANCE

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