

SICK

DUV60E-32KFJZZZS14

DUV60

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
DUV60E-32KFJZZS14	1100995

Illustration may differ

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



Detailed technical data

Features

Special device	✓
Specialty	1 ... 24 pulses per revolution Switching frequency filter, selectable by DIP switch
Standard reference device	DUV60E-32KCJAAA

Safety-related parameters

MTTF_D (mean time to dangerous failure)	275 years (EN ISO 13849-1) ¹⁾
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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 ... 24 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, 4-pin, universal
Pulses per revolution	✓
Output voltage	✓

Direction of rotation	✓
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	✓

Mechanics

Measuring wheel circumference	300 mm
Measuring wheel surface	O-ring NBR70 ¹⁾
Spring arm design	Counter-weight, under-belt yoke mount
Mass	0.9 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
Yoke	Aluminum
Counterweight	Aluminum
Start up torque	0.5 Ncm
Operating torque	0.4 Ncm
Operating speed	1,500 min ⁻¹
Bearing lifetime	3.6 x 10 ⁹ revolutions
Maximum travel/deflection of spring arm	40 mm ³⁾
Recommended pretension	20 mm ³⁾
Max. permissible working area for the spring (continuous operation)	± 10 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⁾ Based on an encoder with a plug connector output and urethane rollers, no mounting necessary (arm mount).

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.

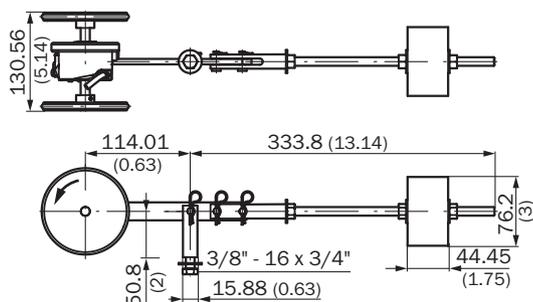
Classifications

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

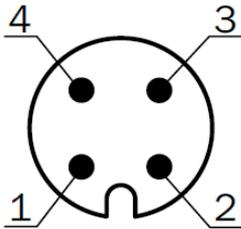
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing



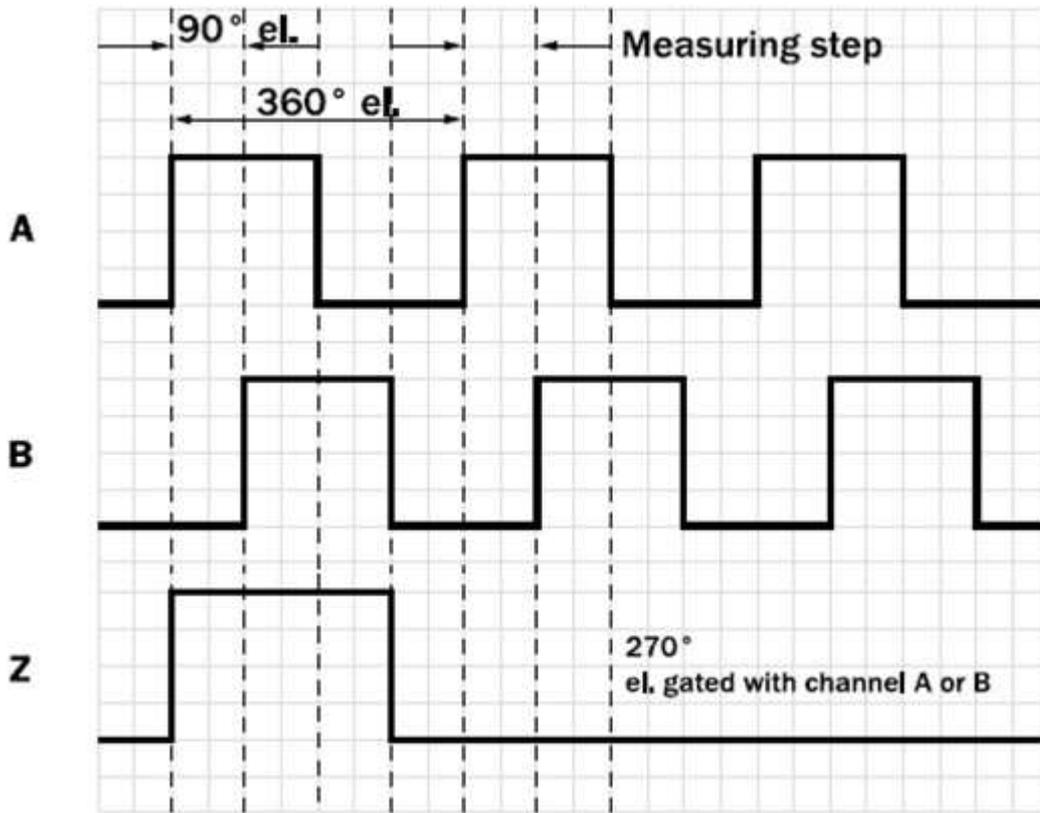
Dimensions in mm (inch)

Anschlussbelegung



Pin	Function	Description	
1	Us	Supply voltage	
2	B	Signal	
3	GND	Ground connection	
4	A	Signal	

Diagrams



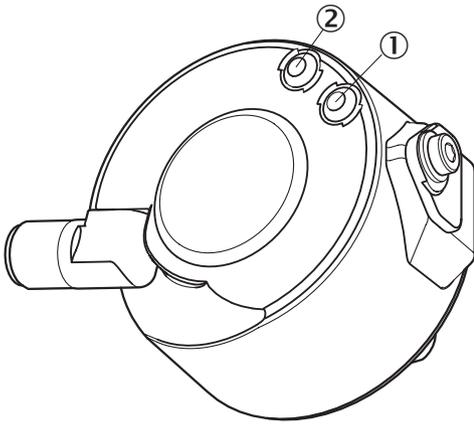
Diagrams

Switch Number	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6		
1	□	□	□	□	□	□	9	□	□	■	□	□	□	17	□	■	□	□	□	□
2	□	□	□	□	□	■	10	□	□	■	□	□	■	18	□	■	□	□	□	■
3	□	□	□	□	■	□	11	□	□	■	□	■	□	19	□	■	□	□	■	□
4	□	□	□	□	■	■	12	□	□	■	□	■	■	20	□	■	□	□	■	■
5	□	□	□	■	□	□	13	□	□	■	■	□	□	21	□	■	□	■	□	□
6	□	□	□	■	□	■	14	□	□	■	■	□	■	22	□	■	□	■	□	■
7	□	□	□	■	■	□	15	□	□	■	■	■	□	23	□	■	□	■	■	□
8	□	□	□	■	■	■	16	□	□	■	■	■	■	24	□	■	□	■	■	■

ON=↓
 Pulses per Revolution
 Anti-Dither
 □ Disabled
 ■ Enabled
 Not Used
 OFF=□↑
 ON=■↓

When Anti-Dither is active (enabled), Channel B is disabled and will remain LOW.

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:

Contacts and other locations –www.sick.com