

DUS60E-TKKCAZZZS02

DUS60

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
DUS60E-TKKCAZZS02	1096813

Other models and accessories → www.sick.com/DUS60



Detailed technical data

Features

Special device	✓
Specialty	Reference signal 270° 1 ... 24 pulses per revolution Switching frequency filter, selectable by DIP switch
Standard reference device	DUS60E-TKKCAAAA

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

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 %

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / HTL ¹⁾
Number of signal channels	6-channel
Programmable/configurable	✓
Parameterising data	DIP switch, selectable output
Output function	A and B output
Initialization time	< 5 ms ²⁾
Output frequency	+ 60 kHz
Load current	≤ 30 mA, per channel
Operating current	≤ 120 mA (without load)
Power consumption	≤ 1.25 W (without load)

¹⁾ The output is not selectable for DIP switch configurations E, F, and G. The output voltage value is dependent on the supply voltage.

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

DIP switch parameters	
Pulses per revolution	✓
Output voltage	✓
Direction of rotation	✓

¹⁾ The output is not selectable for DIP switch configurations E, F, and G. The output voltage value is dependent on the supply voltage.

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

Electronics

Connection type	Male connector, M12, 8-pin, universal ¹⁾
Supply voltage	4.75 ... 30 V
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

Mechanical design	Through hollow shaft
Shaft diameter	1/4" Front clamp
Flange type / stator coupling	Without stator coupling, flange with 4 x M2,5
Weight	0.25 kg ¹⁾
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum
Material, cable	PVC
Start up torque	0.5 Ncm (+20 °C)
Operating torque	0.4 Ncm (+20 °C)
Permissible movement static	± 0.3 mm (radial) ± 0.5 mm (axial)
Permissible movement dynamic	± 0.1 mm (radial) ± 0.2 mm (axial)
Operating speed	1,500 min ⁻¹
Moment of inertia of the rotor	50 gcm ²
Bearing lifetime	3.6 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

¹⁾ Based on encoder with male connector.

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)
Operating temperature range	-30 °C ... +90 °C

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

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.

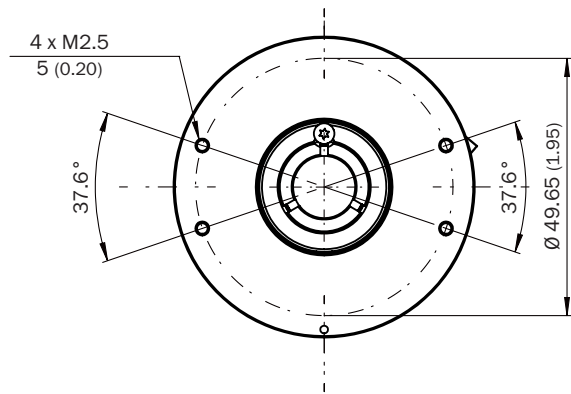
Certificates

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)	✓

Classifications

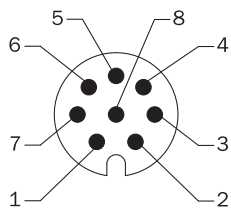
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270501
ECLASS 11.0	27270501
ECLASS 12.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC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

Dimensional drawing



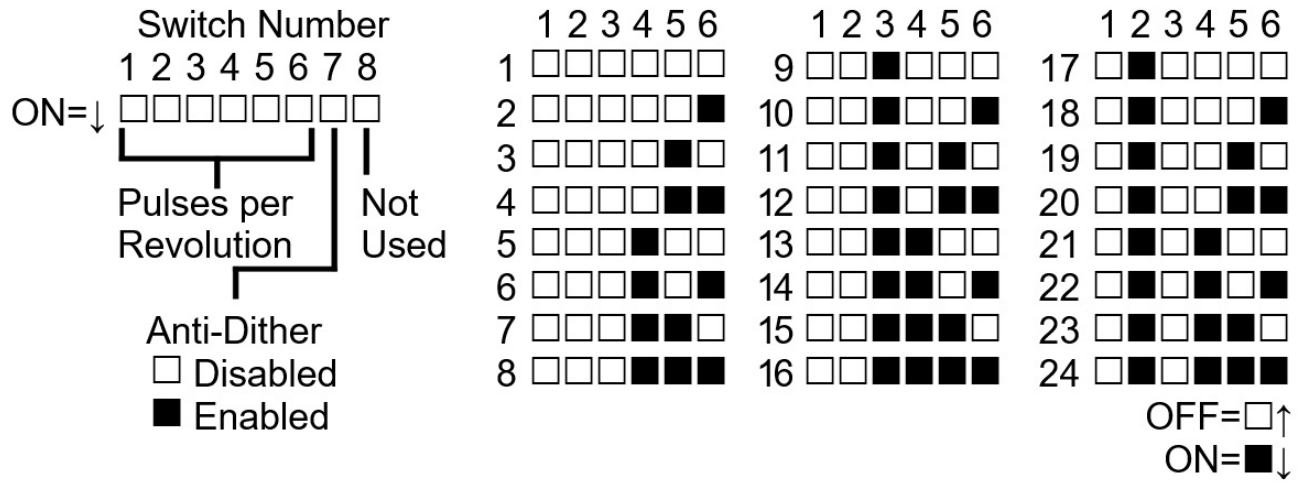
Dimensions in mm (inch)

PIN assignment



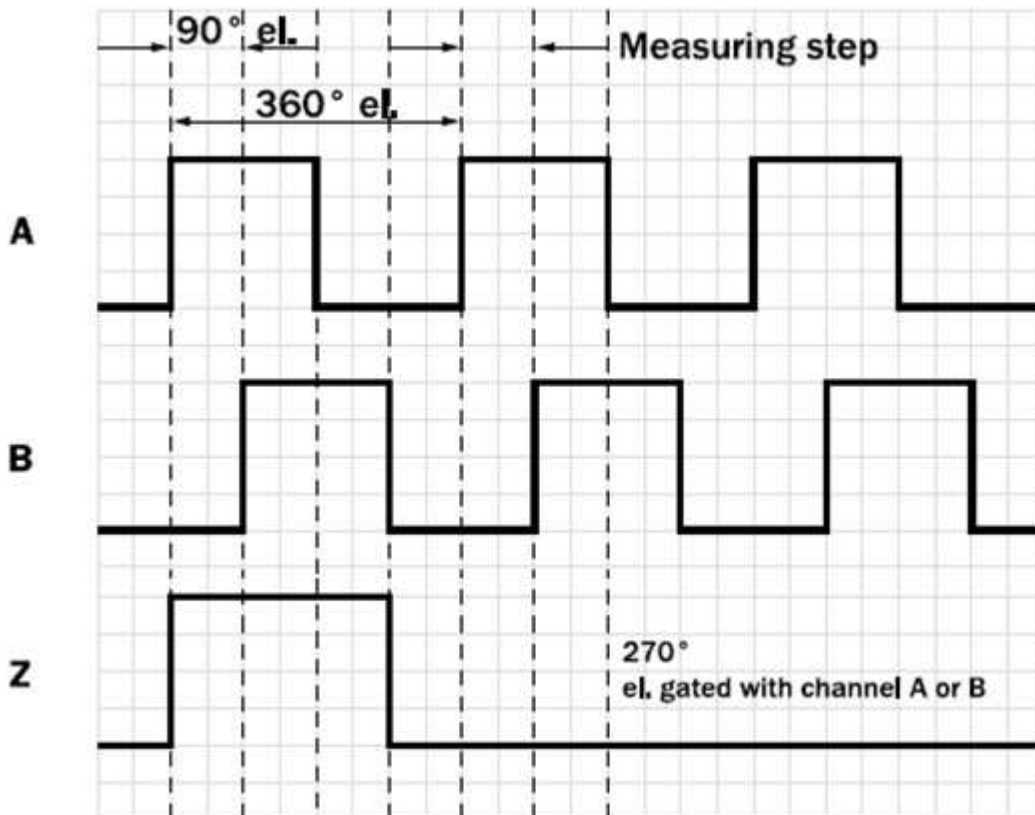
Pin	Function	Description
1	A ₋	Signal
2	A	Signal
3	B ₋	Signal
4	B	Signal
5	Z ₋	Signal
6	Z	Signal
7	GND	Ground connection
8	U _s	Supply Voltage

Diagrams



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

Diagrams



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