

DKS40-E5L02000

DKS40

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

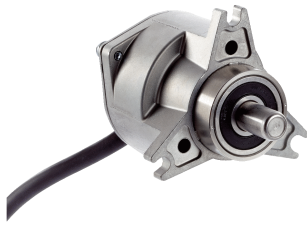


Illustration may differ



Ordering information

Type	Part no.
DKS40-E5L02000	1035549

Other models and accessories → www.sick.com/DKS40

Detailed technical data

Performance

Pulses per revolution	2,000
Measuring step	90° electric/pulses per revolution
Measuring step deviation at non binary number of lines	0.07°
Error limits	0.13° ¹⁾

¹⁾ "Non-binary" number of lines: 2n, where n is not a whole number.

Interfaces

Communication interface	Incremental
Communication Interface detail	HTL / Push pull
Number of signal channels	6-channel
Initialization time	40 ms
Output frequency	≤ 200 kHz
Load current	30 mA
Operating current	≤ 40 mA (without load)
4.5 V... 5.5 V, TTL/RS-422	
Load current	30 mA
Operating current	≤ 40 mA (without load)
4.5 V ... 5.5 V, Open Collector	
Load current	30 mA
Operating current	≤ 40 mA (without load)
TTL/RS-422	
Load current	30 mA
HTL/Push pull	
Load current	30 mA
TTL/HTL	
Load current	30 mA
Open Collector	
Load current	30 mA

Electrical data

Connection type	Cable, 8-wire, universal, 3 m ^{1) 2)}
Supply voltage	10 ... 30 V
Reference signal, number	1
Reference signal, position	90°, electric, logically gated with A and B
MTTFd: mean time to dangerous failure	600 years (EN ISO 13849-1) ³⁾

¹⁾ The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.

²⁾ No UL certification.

³⁾ 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

Mechanical design	Solid shaft, face mount flange
Shaft diameter	8 mm
Shaft length	13 mm
Weight	+ 0.18 kg
Start up torque	0.6 Ncm (+20 °C)
Operating torque	0.4 Ncm (+20 °C)
Permissible shaft loading radial/axial	40 N (radial) 20 N (axial)
Operating speed	6,000 min ⁻¹
Moment of inertia of the rotor	6 gcm ²
Bearing lifetime	2 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

Ambient data

EMC	EN 61000-6-2, EN 61000-6-3
Enclosure rating	IP64
Permissible relative humidity	Condensation of the optical scanning not permitted
Operating temperature range	0 °C ... +60 °C
Storage temperature range	-40 °C ... +70 °C, without package
Resistance to shocks	50 g, 7 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

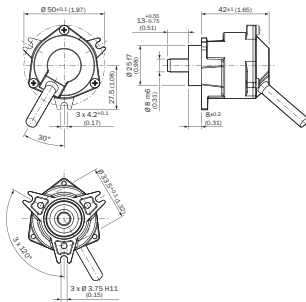
Classifications

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
ECl@ss 10.0	27270501

ECl@ss 11.0	27270501
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

Face mount flange, cable

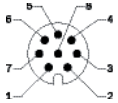


General tolerances according to DIN ISO 2768-mk

PIN assignment

8-core cable



View of the connector side of housing






PIN, 8-pole in M12	Color of wires	Signal OC	Signal TTL, HTL	Explanation
1	Brown	Not connected	A	Signal line
2	White	A	A	Signal line
3	Black	Not connected	B	Signal line
4	Pink	B	B	Signal line
5	Yellow	Not connected	Z	Signal line
6	Lilac	Z	Z	Signal line
7	Blue	GND	GND	Ground connection of the encoder
8	Red	+U _s	+U _s	Supply voltage
Screen	Screen	Screen	Screen	Screen connected to encoder housing. Connect screen on control side.

Recommended accessories

Other models and accessories → www.sick.com/DKS40

	Brief description	Type	Part no.
Flanges			
	<ul style="list-style-type: none"> Description: Flange adapter, adaption of 25 mm spigot face mount flange to 60s face mount flange with 36 mm centering collar Material: Aluminum 	BEF-FA-025-036	2034226
	<ul style="list-style-type: none"> Description: Flange adapter, adaption of 25 mm spigot face mount flange to 50 mm servo flange Material: Aluminum 	BEF-FA-025-050	2032622

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> Description: Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate Material: Aluminum 	BEF-FA-025-060RCA	2032623
	<ul style="list-style-type: none"> Description: Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate with shock-absorber Material: Aluminum 	BEF-FA-025-060RSA	2032624
	<ul style="list-style-type: none"> Description: Flange adapter, adapts face mount flange with 25 mm centering collar to 63 mm square mounting plate Material: Aluminum 	BEF-FA-025-063-REC	2033631
Mounting brackets and plates			
	<ul style="list-style-type: none"> Description: Mounting brackets for encoders with a centering spigot 25 mm Items supplied: Mounting kit for face mount flange included 	BEF-WF-25	2032621
Plug connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Cable Connection type head B: Flying leads Signal type: SSI, Incremental, HIPERFACE® Cable: 8-wire, PUR, halogen-free Description: SSI, shielded, Incremental, HIPERFACE® 	LTG-2308-MWENC	6027529
	<ul style="list-style-type: none"> Connection type head A: Cable Connection type head B: Flying leads Signal type: SSI, Incremental Cable: 11-wire, PUR Description: SSI, shielded, Incremental 	LTG-2411-MW	6027530
	<ul style="list-style-type: none"> Connection type head A: Cable Connection type head B: Flying leads Signal type: SSI, Incremental Cable: 12-wire, PUR, halogen-free Description: SSI, shielded, Incremental 	LTG-2512-MW	6027531
	<ul style="list-style-type: none"> Connection type head A: Cable Connection type head B: Flying leads Signal type: SSI, TTL, HTL, Incremental Cable: 12-wire, UV and saltwater-resistant, PUR, halogen-free Description: SSI, shielded, Head A: cable Head B: cable Cable: suitable for drag chain, PUR, halogen-free, shielded, UV and saltwater resistant, 4 x 2 x 0.25 mm² + 2 x 0.5 mm² + 2 x 0.14 mm², Ø 7.8 mm, TTL, HTL, Incremental 	LTG-2612-MW	6028516
	<ul style="list-style-type: none"> 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 Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mm, SSI Connection systems: Flying leads 	DOL-1208-G02MAC1	6032866
	<ul style="list-style-type: none"> 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 Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mm, SSI Connection systems: Flying leads 	DOL-1208-G05MAC1	6032867

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> • 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 • Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mm, SSI • Connection systems: Flying leads 	DOL-1208-G10MAC1	6032868
	<ul style="list-style-type: none"> • 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 • Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mm, SSI • Connection systems: Flying leads 	DOL-1208-G20MAC1	6032869
Shaft adaptation			
	<ul style="list-style-type: none"> • Description: Bar coupling, shaft diameter 6 mm / 8 mm, maximum shaft offset radial ± 0.3 mm, axial ± 0.2 mm, angle ± 3°, max. speed 10,000 rpm, torsion spring rigidity 38 Nm/wheel; material: fiber-glass reinforced polyamide, aluminum hub 	KUP-0608-S	5314179
	<ul style="list-style-type: none"> • Description: Bar coupling, shaft diameter 8 mm / 8 mm, maximum shaft offset radial ± 0.3 mm, axial ± 0.2 mm, angle ± 3°; max. speed 10,000 rpm, torsion spring rigidity 38 Nm/wheel; material: fiber-glass reinforced polyamide, aluminum hub 	KUP-0808-S	5314177
	<ul style="list-style-type: none"> • Description: Double loop coupling, shaft diameter 8 mm / 10 mm, max. shaft offset: radially +/- 0,25 mm, axially +/- 0,4 mm, angle +/- 4 degrees; max. speed 10.000 rpm, -30 to +120 degrees Celsius, torsional spring stiffness of 150 Nm/rad 	KUP-0810-D	5326704
	<ul style="list-style-type: none"> • Description: Bar coupling, shaft diameter 8 mm / 10 mm, max. shaft offset: radial ± 0,3 mm, axial ± 0,3 mm, angular ± 3°; max. speed 10.000 rpm, -10° to +80 °C, max. torque: 80 Ncm, material: fiber-glass reinforced polyamide, aluminum hub 	KUP-0810-S	5314178

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.”

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