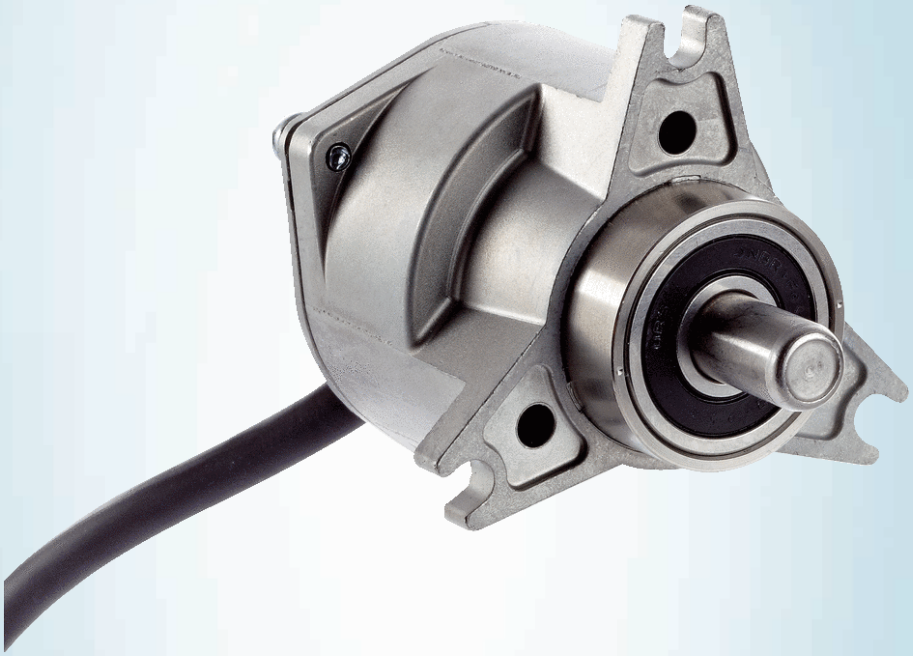
Data sheet



DKS40-A5K00600

DKS40

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.

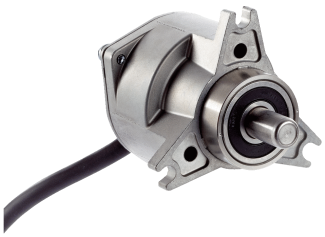


Illustration may differ

Ordering information

Type	part no.
DKS40-A5K00600	1065717

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

Detailed technical data

Performance

Pulses per revolution	600
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	TTL / RS-422
Number of signal channels	6-channel
Initialization time	40 ms
Output frequency	≤ 200 kHz
Load current	30 mA
Operating current	≤ 40 mA (without load)

Electrical data

Connection type	Cable, 8-wire, universal, 1.5 m [1] [2]
Supply voltage	4.5 ... 5.5 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

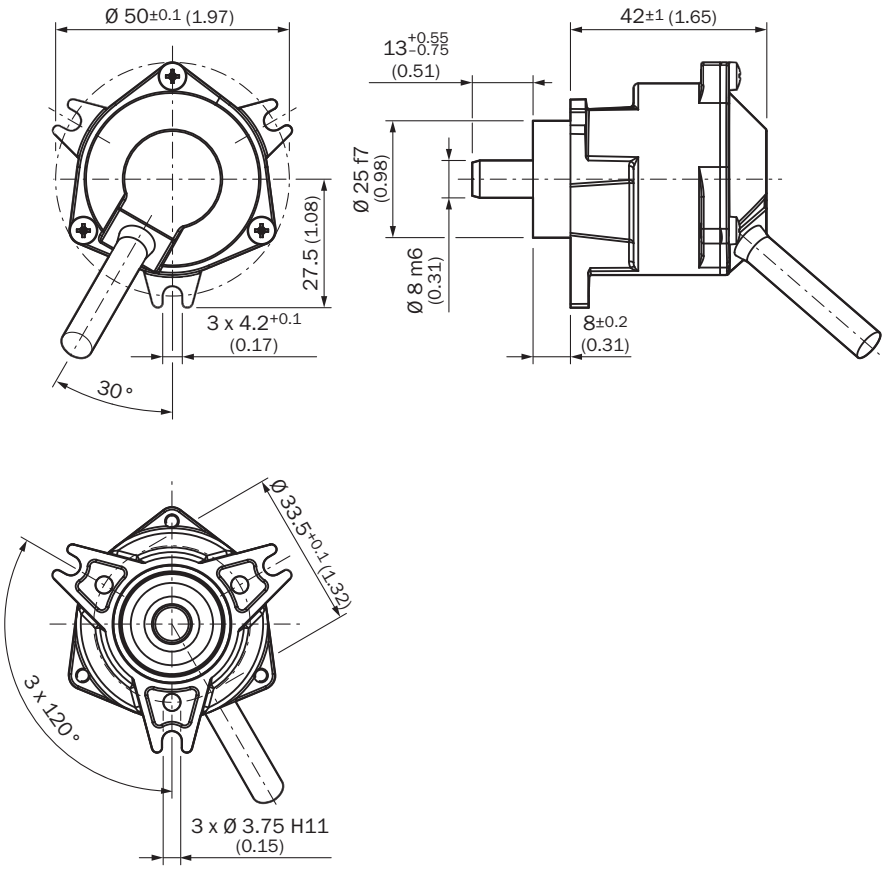
Ambient data

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

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 Face mount flange, cable

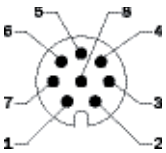


Dimensions in mm (inch)
General tolerances according to DIN ISO 2768-mk

PIN assignment

8-core cable

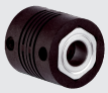
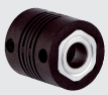
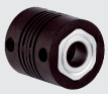
View of the connector side of housing



PIN, 8-pole in M12	Color of wires	Signal OC	Signal TTL, HTL	Explanation
1	Brown	Not connected	$\overline{A}$	Signal line
2	White	A	A	Signal line
3	Black	Not connected	$\overline{B}$	Signal line
4	Pink	B	B	Signal line
5	Yellow	Not connected	$\overline{Z}$	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.
shaft adaptation			
	• **Product segment:** Shaft adaptation • **Product family:** Shaft couplings • **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
	• **Product segment:** Shaft adaptation • **Product family:** Shaft couplings • **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
	• **Product segment:** Shaft adaptation • **Product family:** Shaft couplings • **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
	• **Product segment:** Shaft adaptation • **Product family:** Shaft couplings • **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
	• **Product segment:** Shaft adaptation • **Product family:** Shaft couplings • **Description:** Claw coupling, shaft diameter 8 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular ± 1.3°, max. speed 19,000 rpm, angle of twist max. 10°, –30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane	KUP-0810-J	2128267

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Flange adapter, adaption of 25 mm spigot face mount flange to 50 mm servo flange • **Material:** Aluminum • **Details:** Aluminum	BEF-FA-025-050	2032622
	• **Description:** Flange adapter, adaption of 25 mm spigot face mount flange to 60s face mount flange with 36 mm centering collar • **Material:** Aluminum • **Details:** Aluminum	BEF-FA-025-036	2034226
	• **Description:** Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate • **Material:** Aluminum • **Details:** Aluminum	BEF-FA-025-060RCA	2032623
	• **Description:** Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate with shock-absorber • **Material:** Aluminum • **Details:** Aluminum	BEF-FA-025-060RSA	2032624
	• **Description:** Flange adapter, adapts face mount flange with 25 mm centering collar to 63 mm square mounting plate • **Material:** Aluminum • **Details:** Aluminum	BEF-FA-025-063-REC	2033631
	• **Description:** Mounting brackets for encoders with a centering spigot 25 mm • **Items supplied:** Mounting kit for face mount flange included	BEF-WF-25	2032621

	Brief description	Type	part no.
connectors and cables			
	• **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 mmSSI • **Connection systems:** Flying leads	DOL-1208-G02MAC1	6032866
	• **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 mmSSI • **Connection systems:** Flying leads	DOL-1208-G05MAC1	6032867
	• **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 mmSSI • **Connection systems:** Flying leads	DOL-1208-G10MAC1	6032868
	• **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 mmSSI • **Connection systems:** Flying leads	DOL-1208-G20MAC1	6032869
	• **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, shieldedIncrementalHIPERFACE®	LTG-2308-MWENC	6027529
	• **Connection type head A:** Flying leads • **Connection type head B:** Flying leads • **Signal type:** SSI, Incremental • **Items supplied:** By the meter • **Cable:** 11-wire, PUR • **Description:** SSI, shieldedIncremental	LTG-2411-MW	6027530
	• **Connection type head A:** Flying leads • **Connection type head B:** Flying leads • **Signal type:** SSI, Incremental • **Items supplied:** By the meter • **Cable:** 12-wire, PUR, halogen-free • **Description:** SSI, shieldedIncremental	LTG-2512-MW	6027531
	• **Connection type head A:** Flying leads • **Connection type head B:** Flying leads • **Signal type:** SSI, TTL, HTL, Incremental • **Items supplied:** By the meter • **Cable:** 12-wire, UV and saltwater-resistant, PUR, halogen-free • **Description:** SSI, shieldedTTLHTLIncremental	LTG-2612-MW	6028516

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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