



## Incremental encoders DKS40

DKS40-P5J00250



**Model Name** > [DKS40-P5J00250](#)  
**Part No.** > [1034613](#)



*Illustration may differ*

**At a glance**

- Compact housing
- Durable, low-cost design
- Interfaces: Open collector NPN, TTL/RS-422 or HTL/push pull.
- Connection via cable outlet, for radial or axial use with open ends or fitted with an M12 connector
- Face mount flange with solid shaft
- Housing for simple clamping ring mounting
- Any line count possible from 1 to 2,048

**Your benefits**

- Low-cost encoder with outstanding quality
- Withstands harsh environmental conditions due to high IP protection class and rugged design
- Universal cable outlet enables axial and radial cable guidance
- Compact dimensions enable simple installation even where space is cramped



**Performance**

Measuring step:	90 °, Number of lines
Error limits binary number of lines:	0.09 °
Error limits non-binary number of lines:	0.13 °
Measuring step deviation at binary number of lines:	0.035 °
Measuring step deviation at non binary number of lines:	0.07 °
Initialization time:	40 s
Pulses per revolution:	250

**Mechanical data**

Mechanical interface:	Solid shaft, Face mount flange
Shaft diameter:	8 mm x 13 mm
Mass:	0.18 kg
Start up torque:	0.6 Ncm (+20 °C)
Operating torque:	0.4 Ncm (+20 °C)
Maximum operating speed:	6,000 U/min
Moment of inertia of the rotor:	6 gcm <sup>2</sup>
Bearing lifetime:	2 x 10 <sup>9</sup> revolutions
Max. angular acceleration:	3,6 x 10 <sup>9</sup> rad/s <sup>2</sup>
Permissible shaft loading radial/axial:	40 N, 20 N

## Electrical data

---

Electrical interface:	4.5 V ... 5.5 V, Open Collector NPN, Cable, universal, 0.5 m
Connection type:	Cable, universal, 0.5 m
Operating power consumption (no load):	40 mA
Supply voltage:	4.5 V ... 5.5 V
Output current:	30 mA
Maximum output frequency:	50 kHz
Reference signal, number:	1
Reference signal, position:	90 °, electronically, gated with A and B
MTTFd: mean time to dangerous failure:	600 a (EN ISO 13849-1) <sup>1)</sup>

<sup>1)</sup> 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.

## Ambient data

---

EMC:	EN 61000-6-2, EN 61000-6-3
Protection class housing side with cable outlet:	IP 64
Protection class shaft side:	IP 64
Protection class standard:	IEC 60529
Air humidity:	90 % <sup>1)</sup>
Working 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)

<sup>1)</sup> Condensation of the optical scanning not permitted

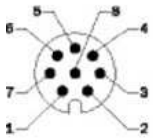
## Dimensional drawing



## 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 <sub>s</sub>	+U <sub>s</sub>	Supply voltage
Screen	Screen	Screen	Screen	Screen connected to encoder housing. Connect screen on control side.

**Australia**

Phone +61 3 9457 0600  
1800 33 48 02 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Česká republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail info@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederland**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)