



Incremental encoders DKS40

DKS40-E5L02048



Model Name > [DKS40-E5L02048](#)
Part No. > [1035410](#)



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: | 2,048 |

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 ² |
| Bearing lifetime: | 2 x 10 ⁹ revolutions |
| Max. angular acceleration: | 3,6 x 10 ⁹ rad/s ² |
| Permissible shaft loading radial/axial: | 40 N, 20 N |

Electrical data

| | |
|--|---|
| Electrical interface: | 10 V ... 30 V, HTL/Push pull, Cable, universal, 3 m |
| Connection type: | Cable, universal, 3 m |
| Operating power consumption (no load): | 40 mA |
| Supply voltage: | 10 V ... 30 V |
| Output current: | 30 mA |
| Maximum output frequency: | 200 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) 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.

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 % ¹⁾ |
| 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) |

¹⁾ Condensation of the optical scanning not permitted

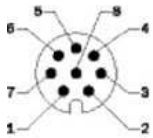
Dimensional drawing



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 | \bar{A} | Signal line |
| 2 | White | A | A | Signal line |
| 3 | Black | Not connected | \bar{B} | Signal line |
| 4 | Pink | B | B | Signal line |
| 5 | Yellow | Not connected | \bar{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. |

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