

ONLINE DATA SHEET
www.mysick.com

Incremental encoders
DBS50 Core

DBS50E-S5EL01200



SICK
Sensor Intelligence.

SICK
Sensor Intelligence.

Incremental encoders
DBS50 Core

Model Name > DBS50E-S5EL01200
Part No. > 1068457



Illustration may differ

At a glance

- Connection with universal cable outlet
- Face mount flange with 8 mm solid shaft
- Face mount flange with 2 mounting hole patterns and servo groove
- "Compact housing diameter of 37 mm,
- flange diameter: 50 mm"
- Various electrical interfaces: TTL/RS-422, HTL/push pull and Open Collector NPN
- Available PPR from 10 up to 2,500
- Working temperature range: -20 °C ... +85 °C
- Enclosure rating: IP 65

Your benefits

- The universal cable outlet allows use in tight spaces and makes flexible cable routing possible
- Face mount flange with various mounting hole patters for easy device replacement without changing the application
- Face mount flange with servo groove makes mounting with servo clamps possible
- The high flexibility of the encoders' mechanical interface and the available accessories make it possible to use one design in many applications
- The compact housing diameter saves valuable space

CE

Performance

Error limits:	± 54 ° (/pulses per revolution)
Measuring step deviation:	± 18 °/impulses per relovution
Measuring step:	90 °/electronically/pulses
Initialization time:	< 3 ms
Pulses per revolution:	1,200
Duty cycle:	≤ 0.5 ± 5 %

Mechanical data

Mechanical interface:	Solid shaft, Face mount flange
Shaft diameter:	8 mm x 15.5 m
Start up torque:	0.9 Ncm (+20 °C)
Operating torque:	0.6 Ncm (+20 °C)
Maximum operating speed:	8,000 U/min [1)]
Moment of inertia of the rotor:	0.65 gcm²
Bearing lifetime:	2 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²

© SICK AG. Subject to change without notice.

Permissible shaft loading radial/axial:	30 N (axial), 50 N (radial)
Shaft material:	Stainless steel
Operating speed:	6,000 /min [2]
Flange material:	Aluminum
Housing material:	Aluminum
Material, cable:	PVC

[1] No permanent operation. Decreasing signal quality. [2] Self warming of 3.3 K per 1000 revolutions/min when applying note working temperature range

Electrical data

Electrical interface:	7 V ... 30 V, HTL/Push pull
Electrical connection:	Cable, 8-wire, universal, 3 m
Maximum output frequency:	300 kHz
Reference signal, number:	1
Reference signal, position:	90 °, electronically, gated with A and B
Operating voltage range:	7 V ... 30 V
Load current max.:	30 mA
MTTFd: mean time to dangerous failure:	600 a (EN ISO 13849-1) [1]
Power consumption max. without load:	0.5 W, Without load
Short-circuit protection of the outputs:	1 [2]
Reverse polarity protection:	1

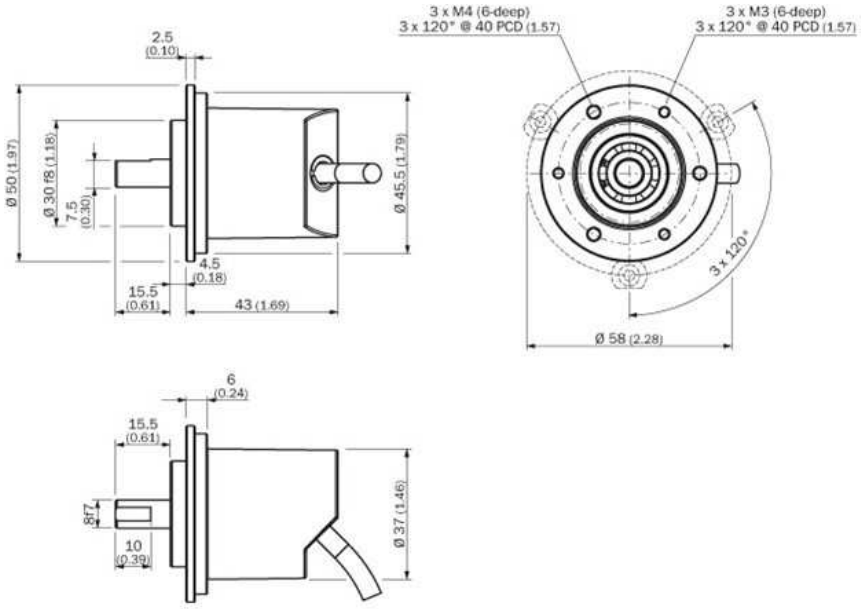
[1] This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532. [2] The short-circuit rating is only given if Us and GND are connected correctly.

Ambient data

EMC:	(according to EN 61000-6-2 and EN 61000-6-4 (class A))
Working temperature range:	-20 °C ... +85 °C
Storage temperature range:	-40 °C ... +100 °C, without package
Resistance to shocks:	100 g (EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)
Enclosure rating:	IP 65
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)

© SICK AG. Subject to change without notice.

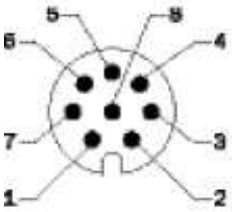
Dimensional drawing



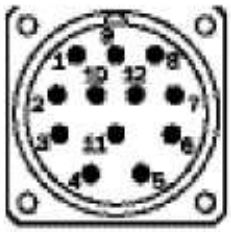
PIN assignment

8-core cable

View of M12 device connector on cable



View of M23 device connector on cable



PIN, 8-pole in M12	PIN, 12-pole in M23	Color of wires	Signal OC	Signal TTL, HTL	Explanation
1	6	Brown	Not connected	$\overline{A}$	Signal line
2	5	White	A	A	Signal line
3	1	Black	Not connected	$\overline{B}$	Signal line
4	8	Pink	B	B	Signal line
5	4	Yellow	Not connected	$\overline{Z}$	Signal line
6	3	Lilac	Z	Z	Signal line
7	10	Blue	GND	GND	Ground connection of the encoder
8	12	Red	$+U_V$	$+U_S$	Supply voltage
–	9	–	Not connected	Not connected	Not connected
–	2	–	Not connected	Not connected	Not connected
–	11	–	Not connected	Not connected	Not connected
–	7	–	Not connected	Not connected	Not connected
Screen	Screen	Screen	Screen	Screen	Screen connected to encoder housing

© SICK AG. Subject to change without notice.

A4 4c int43

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**

SICK
Sensor Intelligence.