



DKV60E-22EPA0020

DKV60

MEASURING WHEEL ENCODERS

SICK
Sensor Intelligence.

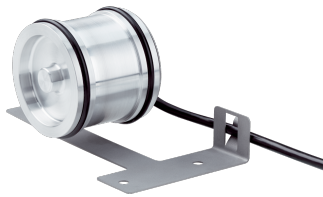


Illustration may differ



Ordering information

Type	part no.
DKV60E-22EPA0020	1115721

Other models and accessories → www.sick.com/DKV60

Detailed technical data

Performance

Pulses per revolution	20
Resolution in pulses/mm	0.1
Measuring increment (resolution in mm/pulse)	10
Measuring step deviation	± 18°, / pulses per revolution
Error limits	± 4 mm/m, subject to the measuring wheel (wheel + surface)
Duty cycle	≤ 0.5 ± 5 %
Initialization time	≤ 3 ms

Interfaces

Communication interface	Incremental
Communication Interface detail	HTL / Push pull
Number of signal channels	6-channel

Electronics

Operating power consumption (no load)	50 mA
Connection type	Cable, 8-wire, with male connector, M12, 8-pin, universal, 1.5 m
Supply voltage	10 V ... 30 V
Load current max.	30 mA
Maximum output frequency	≤ 300 kHz
Reference signal, number	1
Reference signal, position	90°, electric, logically gated with A and B
Reverse polarity protection	✓

Mechanics

Measuring wheel circumference	200 mm
Measuring wheel surface	O ring EPDM ¹⁾
Spring arm design	69.5 mm spring arm
Mass	420 g

¹⁾ The surface of a measuring wheel is subject to wear. This depends on contact pressure, acceleration behavior in the application, traversing speed, measurement surface, mechanical alignment of the measuring wheel, temperature, and ambient conditions. We recommend you regularly check the condition of the measuring wheel and replace as required.

²⁾ When measured from the top of the measuring surface.

Encoder material	Shaft	Stainless steel
	Flange	Aluminum
	Housing	Aluminum
	Cable	PVC
Spring arm mechanism material		
	Spring element	Spring steel, anti-corrosive
		Spring steel, anti-corrosive
Start up torque		0.9 Ncm (at 20 °C)
Operating torque		0.4 Ncm (at 20 °C)
Operating speed		≤ 1,000 min ⁻¹
Maximum operating speed		1,500 min ⁻¹
Bearing lifetime		2 x 10 ⁹ revolutions
Maximum travel/deflection of spring arm		8 mm at 14 N spring travel
Recommended pretension		8 N at 4 mm deflection ²⁾
Max. permissible working area for the spring (continuous operation)		± 1.5 mm
Recommended spring deflection		2 mm ... 8 mm
Mounted encoder		DBS50 Core, DBS50E-SKEPA0020

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²⁾ When measured from the top of the measuring surface.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 (class A)
Enclosure rating	IP65
Operating temperature range	-20 °C ... +60 °C -35 °C ... +95 °C (on request)
Storage temperature range	-40 °C ... +100 °C, without package
Resistance to shocks	50 g, 7 ms (DIN/EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

Classifications

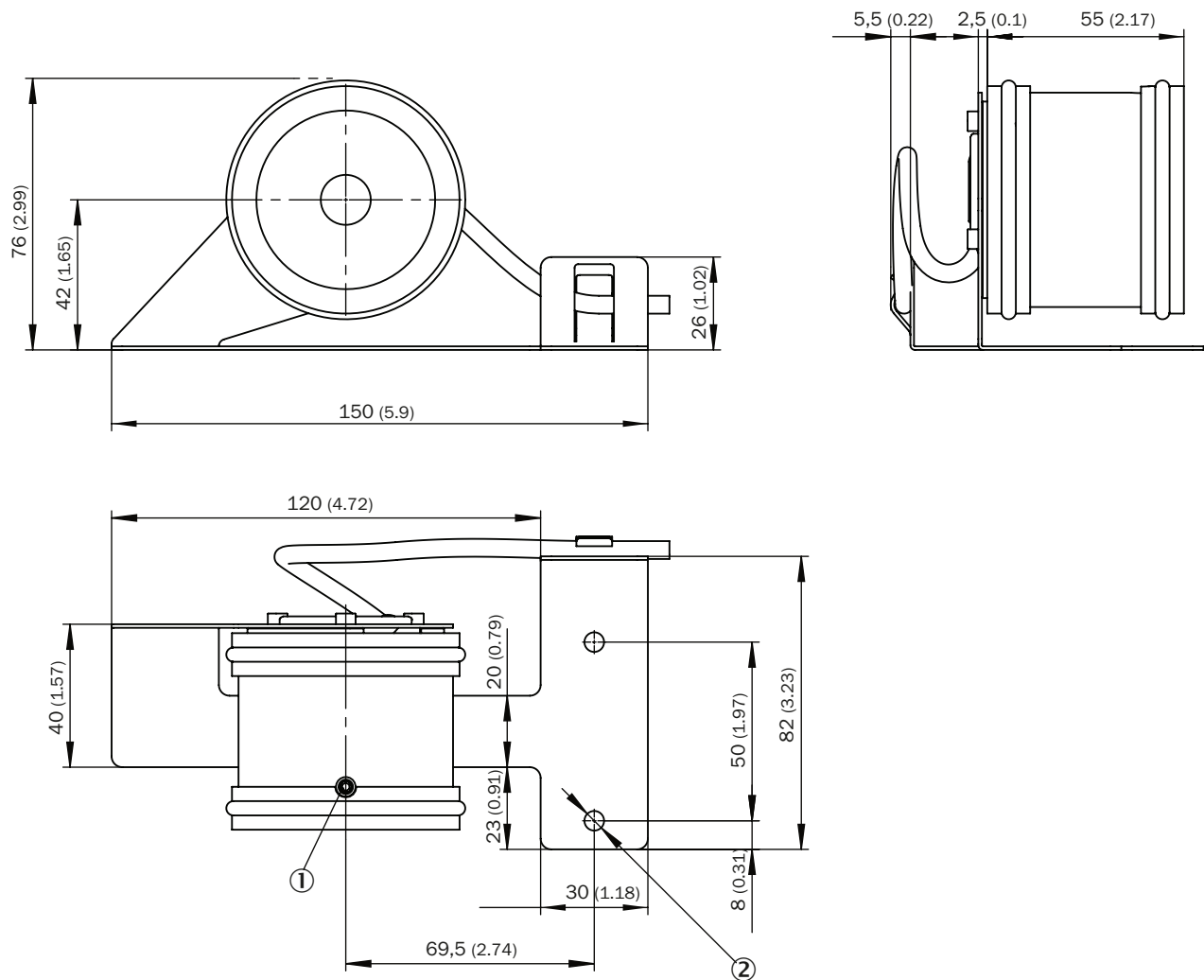
ECLASS 5.0	27270501
ECLASS 5.1.4	27270501
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270501
ECLASS 8.0	27270501
ECLASS 8.1	27270501
ECLASS 9.0	27270501
ECLASS 10.0	27270790
ECLASS 11.0	27270707
ECLASS 12.0	27270504

ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Certificates

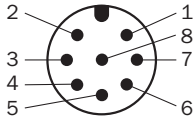
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing



⊙ 2 x Ø 5.5

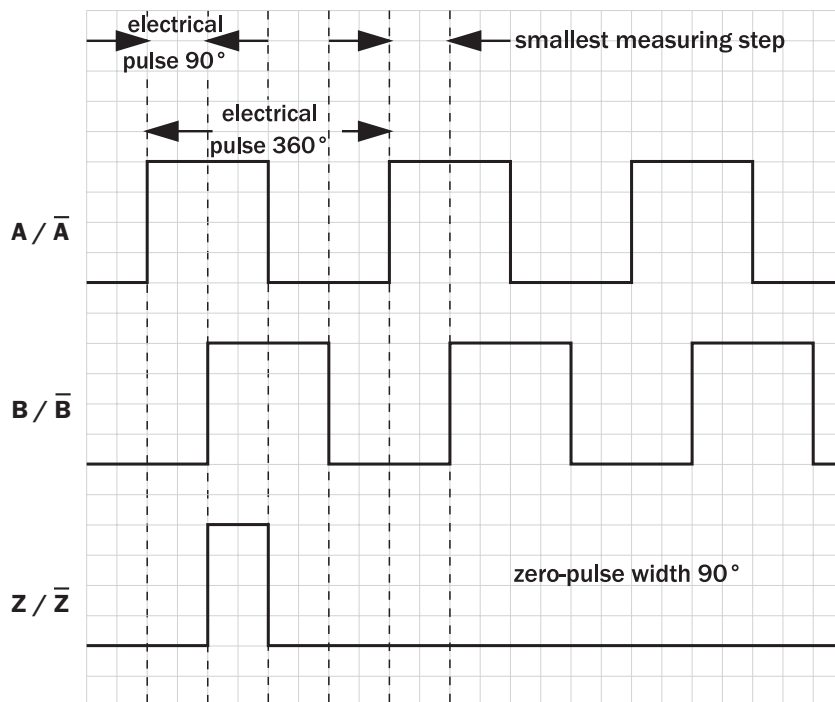
Anschlussbelegung



view of M12 male device connector on cable / housing

Wire colors (cable connection)	Male connector M12, 8-pin	TTL/HTL 6-channel signal	Explanation
Brown	1	A-	Signal cable
White	2	A	Signal cable
Black	3	B-	Signal cable
Pink	4	B	Signal cable
Yellow	5	Z-	Signal cable
Purple	6	Z	Signal cable
Blue	7	GND	Ground connection
Red	8	+U _s	Supply voltage
Shielding	Shielding	Shielding	Shielding connected to encoder housing

Diagrams



Recommended accessories

Other models and accessories → www.sick.com/DKV60

	Brief description	Type	part no.
connectors and cables			
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 2 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G02MLA3	2030682
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 7 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G07MLA3	2030685
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 10 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G10MLA3	2030688
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 15 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G15MLA3	2030692
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 20 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G20MLA3	2030695
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 25 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G25MLA3	2030699
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 30 m, 11-wire, PUR • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G30MLA3	2030702
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 1.5 m, 12-wire, PUR, halogen-free • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G1M5MA3	2029212
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 3 m, 12-wire, PUR, halogen-free • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G03MMA3	2029213
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 5 m, 12-wire, PUR, halogen-free • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G05MMA3	2029214
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 10 m, 12-wire, PUR, halogen-free	DOL-2312-G10MMA3	2029215

	Brief description	Type	part no.
	• Description: Incremental, shielded • Application: Zones with oils and lubricants		
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 20 m, 12-wire, PUR, halogen-free • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G20MMA3	2029216
	• Connection type head A: Female connector, M23, 12-pin, straight • Connection type head B: Flying leads • Signal type: Incremental • Cable: 30 m, 12-wire, PUR, halogen-free • Description: Incremental, shielded • Application: Zones with oils and lubricants	DOL-2312-G30MMA3	2029217
	• 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, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants	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, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants	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, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants	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, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants	DOL-1208-G20MAC1	6032869
	• Connection type head A: Female connector, M12, 8-pin, straight • Connection type head B: Flying leads • Signal type: Incremental, SSI • Cable: 25 m, 8-wire, PUR, halogen-free • Description: Incremental, shielded, SSI • Connection systems: Flying leads • Application: Drag chain operation, Zones with oils and lubricants	DOL-1208-G25MAC1	6067859

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.

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