



## DBV50

Compact measuring wheel encoder with high flexibility and easy installation

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Sensor Intelligence.



## Technical data overview

<b>Resolution in pulses/mm</b>	0.01 ... 12.5 (depends on variant)
<b>Spring deflection spring arm</b>	± 3 mm
<b>Spring arm design</b>	63.5 mm spring arm, encoder on mounting side (left), single wheel 63.5 mm spring arm, wheel on mounting side (right), single wheel 63.5 mm spring arm with mounting bolt, wheel on mounting side (right), single wheel 63.5 mm spring arm with mounting bolt, encoder on mounting side (left), single wheel (depends on variant)
<b>Measuring wheel circumference</b>	Without measuring wheel 200 mm
<b>Measuring wheel surface</b>	O-ring NBR70
<b>Communication interface</b>	Incremental
<b>Communication Interface detail</b>	TTL / HTL / Open Collector (depends on variant)
<b>Connection type</b>	Cable Cable, with male connector, M12 Cable, with male connector, M23
<b>Supply voltage</b>	4.5 V ... 30 V (depends on variant)
<b>Operating temperature range</b>	-35 °C ... +95 °C (on request) (depends on variant)

## Product description

The DBV50 measuring wheel encoder is a measuring wheel system for measuring linear movements. It consists of the DBS50 incremental encoder, an aluminum measuring wheel with a 200 mm diameter and a spring-loaded arm. The maximum resolution is 0.08 mm per pulse. The spring arm has a maximum spring travel of 14 mm, a maximum spring force of 20 N and features a convenient pretension setting for repeatably setting the spring pretension. A spring travel limiter protects the spring from being overloaded. The encoder can be rotated and mounted on both sides of the spring arm; routing of the cable can be adapted to the application. The measuring wheel system can be delivered with numerous electrical interfaces, facilities for connecting and resolutions.

## At a glance

- Axis distance: 63.5 mm
- Measuring wheel circumference: 200 mm
- Resolution: 0.08 mm per pulse, 12.5 pulses per mm
- Max. spring travel: 14 mm, mechanically limited, max. spring force: 21 N
- Encoder rotation in 30° increments
- The encoder can be mounted on both spring arm sides, wheel support from top and bottom
- Adjustable spring pretension

## Your benefits

- Compact, space-saving measuring wheel system with low installation depth
- Large spring travel and high press-on force to compensate for unevenness in the surface being measured
- Easy and repeatable setting of the spring pretension
- Prevents system failures by limiting the spring travel to protect the spring from being overloaded
- Highly adaptable to various applications thanks to a variety of options for mounting the encoder on the spring arm
- Reliable operation thanks to the reliable encoder with a high radial load
- Numerous electrical interfaces, facilities for connecting and resolutions

## Fields of application

- Measuring of position, speed and distance in applications with linear movements in storage logistics and mechanical engineering.
- Conveyor belts
- Wood industry
- Laser and inkjet printers for labels, packaging and bottles
- Shuttle systems in storage logistics
- Volume measurement and weighing systems
- Packaging machines

## Ordering information

Other models and accessories → [www.sick.com/DBV50](http://www.sick.com/DBV50)

- **Type of movement at location of encoder installation:** rotary, linear
- **Mechanical adaptation:** With measuring wheel
- **Measuring wheel circumference:** without measuring wheel

Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.
4.5 V ... 30 V, Incremental, Open Collector	4.5 V ... 30 V	10	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	0.05	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-00RKA0010	1122415
4.5 V ... 5.5 V, Incremental, TTL, RS-422	4.5 V ... 5.5 V	2,000	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10		DBV50E-00AKA2000	1085990
7 V ... 27 V, Incremental, HTL, Push pull	7 V ... 27 V	2,000	Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	10	63.5 mm spring arm with mounting bolt, wheel on mounting side (right), single wheel	DBV50E-00GPF2000	1131800
					63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-00GPB2000	1086903
		2,500	Cable, 5-wire, universal, 10 m <sup>1)</sup>	12.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-00GNA2500	1114648
						DBV50E-00EKA2000	1121196
7 V ... 30 V, Incremental, HTL, Push pull	7 V ... 30 V	2,000	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10			
7 V ... 30 V, Incremental, TTL, RS-422	7 V ... 30 V	2,500	Cable, 8-wire, universal, 10 m <sup>1)</sup>	12.5		DBV50E-00CNA2500	1110369

<sup>1)</sup> Number of wires depending on electrical interface: Interface A, C, E: 8-wire; Interface G, P, R: 5-wire.

- **Type of movement at location of encoder installation:** rotary, linear
- **Mechanical adaptation:** With measuring wheel
- **Measuring wheel circumference:** 200 mm
- **Measuring wheel surface:** O-ring NBR70

Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.				
4.5 V ... 30 V, Incremental, Open Collector	4.5 V ... 30 V	1,000	Cable, 5-wire, universal, 5 m <sup>1)</sup>	5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA1000	1105199				
		2,000	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	10		63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22RKA2000	1079597			
					DBV50E-22RKB2000		1081176				
			Cable, 5-wire, universal, 5 m <sup>1)</sup>	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA2000	1087026				
						DBV50E-22RPA2000	1099554				
			2,500	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	12.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RKA2500	1090533			
		DBV50E-22RNA2500					1090531				
		DBV50E-22RMA2500					1090532				
		DBV50E-22RPA2500					1130301				
		20		Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	0.01	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22RKA0020	1079601			
			DBV50E-22RNA0020				1121579				
			Cable, 5-wire, universal, 10 m <sup>1)</sup>	0.01	63.5 mm spring arm, wheel on mounting side (right), single wheel		DBV50E-22RNB0020	1085022			
							Cable, 5-wire, universal, 5 m <sup>1)</sup>	0.01	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA0020	1121578
										DBV50E-22RMA0200	1112306
		200	Cable, 5-wire, universal, 5 m <sup>1)</sup>	1	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RKA0500	1143388				
		500	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	2.5							

Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.	
4.5 V ... 5.5 V, Incremental, TTL, RS-422	4.5 V ... 5.5 V	1,000	Cable, 8-wire, universal, 0.5 m <sup>1)</sup>	5		DBV50E-22AJA1000	1079593	
			Cable, 8-wire, universal, 10 m <sup>1)</sup>	5		DBV50E-22ANA1000	1104463	
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	5		DBV50E-22AMA1000	1081682	
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	5		DBV50E-22APA1000	1099587	
		2,000	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10	63.5 mm spring arm with mounting bolt, encoder on mounting side (left), single wheel	DBV50E-22AKE2000	1087792	
					63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22AKA2000	1079594	
					63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22AKB2000	1081173	
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22AMA2000	1081350	
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	10		DBV50E-22APA2000	1082277	
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	10		DBV50E-22AQA2000	1111603	
						DBV50E-22AKA2500	1082586	
			2,500	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	12.5	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22AKB2500	1082499
							DBV50E-22ANA2500	1104462
				Cable, 8-wire, universal, 10 m <sup>1)</sup>	12.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22ALA2500	1092640
				Cable, 8-wire, universal, 3 m <sup>1)</sup>	12.5		DBV50E-22AMA2500	1102417
								DBV50E-22AKA2500

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Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.
7 V ... 30 V, Incremental, HTL, Push pull	7 V ... 30 V	1,000	nector, M12, 8-pin, universal, 0.5 m				
			Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	5		DBV50E-22EKA1000	1081979
			Cable, 8-wire, universal, 3 m <sup>1)</sup>	5		DBV50E-22ELA1000	1081892
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	5		DBV50E-22EMA1000	1081894
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	5		DBV50E-22EPA1000	1098341
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	5	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EPB1000	1104464
						DBV50E-22EQB1000	1125690
		10	Cable, 8-wire, universal, 3 m <sup>1)</sup>	0.05	63.5 mm spring arm, encoder on	DBV50E-22ELA0010	1094961

<sup>1)</sup> Number of wires depending on electrical interface: Interface A, C, E: 8-wire; Interface G, P, R: 5-wire.

<sup>2)</sup> M23 male connector for central mounting.

Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.
	7 V ... 30 V	2,000	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10	mounting side (left), single wheel	DBV50E-22EKA2000	1079595
					63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EKB2000	1081178
			Cable, 8-wire, universal, 3 m <sup>1)</sup>	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22ELA2000	1081893
		2,000	Cable, 8-wire, universal, 5 m <sup>1)</sup>	10		DBV50E-22EMA2000	1081895
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	10		DBV50E-22EPA2000	1082278
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	10		DBV50E-22EQA2000	1118109
		2,500	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	12.5	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EKB2500	1136763
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	12.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EMA2500	1084352
		20	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	0.01		DBV50E-22EKA0020	1079599
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	0.01		DBV50E-22EPA0020	1098748
		200	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	1	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EKB0200	1097189
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	1		DBV50E-22EMB0200	1123343
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	1	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EPA0200	1081391
		400	Cable, 8-wire, universal, 3 m <sup>1)</sup>	2	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22ELB0400	1096842
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	2	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EPA0400	1087231
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	2	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EQA0400	1118109



Communication interface	Supply voltage	Pulses per revolution	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.
7 V ... 30 V, Incremental, TTL, RS-422	7 V ... 30 V		connector, M12, 8-pin, universal, 0.5 m				
		1,000	Cable, 8-wire, universal, 0.5 m <sup>1)</sup>	5		DBV50E-22CJA1000	1084316
		100	Cable, 8-wire, universal, 3 m <sup>1)</sup>	0.5		DBV50E-22CLA0100	1110202
		2,000	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10		DBV50E-22CKA2000	1079596
					63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22CKB2000	1081177
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22CPA2000	1088594
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	10		DBV50E-22CQA2000	1088728
		2,500	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	12.5		DBV50E-22CKA2500	1106275
			Cable, 8-wire, universal, 10 m <sup>1)</sup>	12.5		DBV50E-22CNA2500	1081320
			Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	12.5		DBV50E-22CPA2500	1082500
			Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	12.5		DBV50E-22CQA2500	1094602
		20	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	0.01		DBV50E-22CKA0020	1079600
			Cable, 8-wire, universal, 5 m <sup>1)</sup>	0.01		DBV50E-22CMA0020	1101645
		200	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	1	63.5 mm spring arm, wheel on mounting	DBV50E-22CKB0200	1081467

<sup>1)</sup> Number of wires depending on electrical interface: Interface A, C, E: 8-wire; Interface G, P, R: 5-wire.

<sup>2)</sup> M23 male connector for central mounting.

Communica- tion interface	Supply voltage	Pulses per revolution	Connec- tion type	Resolution in pulses/mm	Spring arm design	Type	Part no.
					side (right), single wheel		

1) Number of wires depending on electrical interface: Interface A, C, E: 8-wire; Interface G, P, R: 5-wire.  
2) M23 male connector for central mounting.

## 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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