



## DBV50 Core

Compact measuring wheel system that is highly flexible and easy to mount

MEASURING WHEEL ENCODERS

**SICK**  
Sensor Intelligence.



### Technical data overview

<b>Resolution in pulses/mm</b>	0.01 ... 12.5 (depending on type)
<b>Spring deflection spring arm</b>	± 3 mm
<b>Measuring wheel circumference</b>	Without measuring wheel / 200 mm (depending on type)
<b>Measuring wheel surface</b>	O-ring NBR70
<b>Communication interface</b>	Incremental
<b>Communication Interface detail</b>	TTL / HTL / Open Collector (depending on type)
<b>Connection type</b>	Cable, 8-wire, universal Cable, 5-wire, universal Cable, 8-wire, with male connector, M12, 8-pin, universal Cable, 8-wire, with male connector, M23, 12-pin, universal
<b>Supply voltage</b>	4.5 V ... 30 V (depending on type)

### Product description

The DBV50 Core measuring wheel encoder is a measuring wheel system for measuring linear movements. It consists of the DBS50 Core 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\\_Core](http://www.sick.com/DBV50_Core)

- **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	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	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	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	Cable, 5-wire, universal, 10 m <sup>1)</sup>	12.5		DBV50E-00GNA2500	1114648
		Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	10	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-00GPB2000	1086903
7 V ... 30 V, Incremental, HTL, Push pull	7 V ... 30 V	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-00EKA2000	1121196
7 V ... 30 V, Incremental, TTL, RS-422	7 V ... 30 V	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	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	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	0.01	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RKA0020	1079601
			10		DBV50E-22RKA2000	1079597
			12.5	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22RKB2000	1081176
				63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RKA2500	1090533
			0.01	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22RNA0020	1121579
					DBV50E-22RNB0020	1085022
		12.5		63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RNA2500	1090531
		Cable, 5-wire, universal, 10 m <sup>1)</sup>	0.01	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA0020	1121578
					DBV50E-22RMA0200	1112306
					DBV50E-22RMA1000	1105199
					DBV50E-22RMA2000	1087026
					DBV50E-22RMA2500	1090532
					DBV50E-22RPA2000	1099554
					10	
		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
DBV50E-22RMA1000	1105199					
DBV50E-22RMA2000	1087026					
DBV50E-22RMA2500	1090532					
DBV50E-22RPA2000	1099554					
Cable, 5-wire, universal, 5 m <sup>1)</sup>	1	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA0020	1121578		
			DBV50E-22RMA0200	1112306		
			DBV50E-22RMA1000	1105199		
			DBV50E-22RMA2000	1087026		
			DBV50E-22RMA2500	1090532		
			DBV50E-22RPA2000	1099554		
Cable, 5-wire, universal, 5 m <sup>1)</sup>	5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA0020	1121578		
			DBV50E-22RMA0200	1112306		
			DBV50E-22RMA1000	1105199		
			DBV50E-22RMA2000	1087026		
			DBV50E-22RMA2500	1090532		
			DBV50E-22RPA2000	1099554		
Cable, 5-wire, universal, 5 m <sup>1)</sup>	10	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22RMA0020	1121578		
			DBV50E-22RMA0200	1112306		
			DBV50E-22RMA1000	1105199		
			DBV50E-22RMA2000	1087026		
			DBV50E-22RMA2500	1090532		
			DBV50E-22RPA2000	1099554		
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-22RMA0020	1121578		
			DBV50E-22RMA0200	1112306		
			DBV50E-22RMA1000	1105199		
			DBV50E-22RMA2000	1087026		
			DBV50E-22RMA2500	1090532		
			DBV50E-22RPA2000	1099554		

<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	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	Cable, 8-wire, universal, 0.5 m <sup>1)</sup>	5		DBV50E-22AJA1000	1079593
		Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	0.01		DBV50E-22AKA0020	1079598
			1	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22AKB0200	1081466
			10	63.5 mm spring arm with mounting bolt, encoder on mounting side (left), single wheel	DBV50E-22AKE2000	1087792
				63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22AKB2000	1081173
			12.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22AKA2500	1082586
				63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22AKB2500	1082499
		Cable, 8-wire, universal, 10 m <sup>1)</sup>	1	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22ANA0200	1098424
			5		DBV50E-22ANA1000	1104463
			12.5		DBV50E-22ANA2500	1104462
		Cable, 8-wire, universal, 3 m <sup>1)</sup>	12.5		DBV50E-22ALA2500	1092640
		Cable, 8-wire, universal, 5 m <sup>1)</sup>	5		DBV50E-22AMA1000	1081682
			10		DBV50E-22AMA2000	1081350
			12.5		DBV50E-22AMA2500	1102417
		Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	5		DBV50E-22APA1000	1099587
			10		DBV50E-22APA2000	1082277
		Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	10		DBV50E-22AQA2000	1111603

<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	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.		
7 V ... 27 V, Incremental, HTL, Push pull	7 V ... 27 V	Cable, 5-wire, universal, 1.5 m <sup>1)</sup>	0.01		DBV50E-22GKA0020	1082276		
			0.05	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22GKB0010	1112603		
			1		DBV50E-22GKB0200	1081468		
			2.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22GKA0500	1084979		
			10		DBV50E-22GKA2000	1081174		
			12.5	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22GKB2000	1081175		
				DBV50E-22GKB2500	1093852			
		Cable, 5-wire, universal, 10 m <sup>1)</sup>	1	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22GNA0200	1090989		
			5		DBV50E-22GNA1000	1091758		
			10		DBV50E-22GNA2000	1090988		
			12.5		DBV50E-22GNA2500	1087900		
		Cable, 5-wire, universal, 3 m <sup>1)</sup>	10	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22GLB2000	1085371		
		Cable, 5-wire, universal, 5 m <sup>1)</sup>	0.05	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22GMA0010	1097366		
		Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	1	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22GPB0200	1082735		
			2.5		63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22GPA0500	1095213	
			5			DBV50E-22GPA1000	1098342	
			10			DBV50E-22GPA2000	1099521	
			0.05		DBV50E-22GQA0010	1084779		
		Cable, 8-wire, with male connector, M23, 12-pin, universal, 0.5 m <sup>2)</sup>	0.01		DBV50E-22EKA0020	1079599		
		7 V ... 30 V, Incremental, HTL, Push pull	7 V ... 30 V	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

<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	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.
			2.5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EKA0500	1099335
			5		DBV50E-22EKA1000	1081979
			10		DBV50E-22EKA2000	1079595

<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	Connection type	Resolution in pulses/mm	Spring arm design	Type	Part no.			
	7 V ... 30 V	Cable, 8-wire, universal, 3 m <sup>1)</sup>	0.05	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EKB2000	1081178			
				63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22ELA0010	1094961			
		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			
				63.5 mm spring arm, encoder on mounting side (left), single wheel	2.5	DBV50E-22ELA0500	1085190		
					5	DBV50E-22ELA1000	1081892		
					10	DBV50E-22ELA2000	1081893		
				Cable, 8-wire, universal, 5 m <sup>1)</sup>	1	63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EMB0200	1123343	
						63.5 mm spring arm, encoder on mounting side (left), single wheel	5	DBV50E-22EMA1000	1081894
		10	DBV50E-22EMA2000				1081895		
		12.5	DBV50E-22EMA2500				1084352		
		0.01	DBV50E-22EPA0020				1098748		
		Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	2			1	DBV50E-22EPA0200	1081391	
						2	DBV50E-22EPA0400	1087231	
						63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EPB0400	1101229	
						63.5 mm spring arm, encoder on mounting side (left), single wheel	2.5	DBV50E-22EPA0500	1119331
							5	DBV50E-22EPA1000	1098341
				63.5 mm spring arm, wheel on mounting side (right), single wheel	DBV50E-22EPB1000		1104464		
				10	DBV50E-22EPA2000	1082278			
				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-22EQB1000	1125690	
		63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22EQA2000			1118109			
		7 V ... 30 V, Incremental, TTL, RS-422	7 V ... 30 V	Cable, 8-wire, universal, 0.5 m <sup>1)</sup>	5	63.5 mm spring arm, encoder on mounting side (left), single wheel	DBV50E-22CJA1000	1084316	
							0.01	DBV50E-22CKA0020	1079600
				Cable, 8-wire, universal, 1.5 m <sup>1)</sup>	1	63.5 mm spring	DBV50E-22CKB0200	1081467	





## 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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