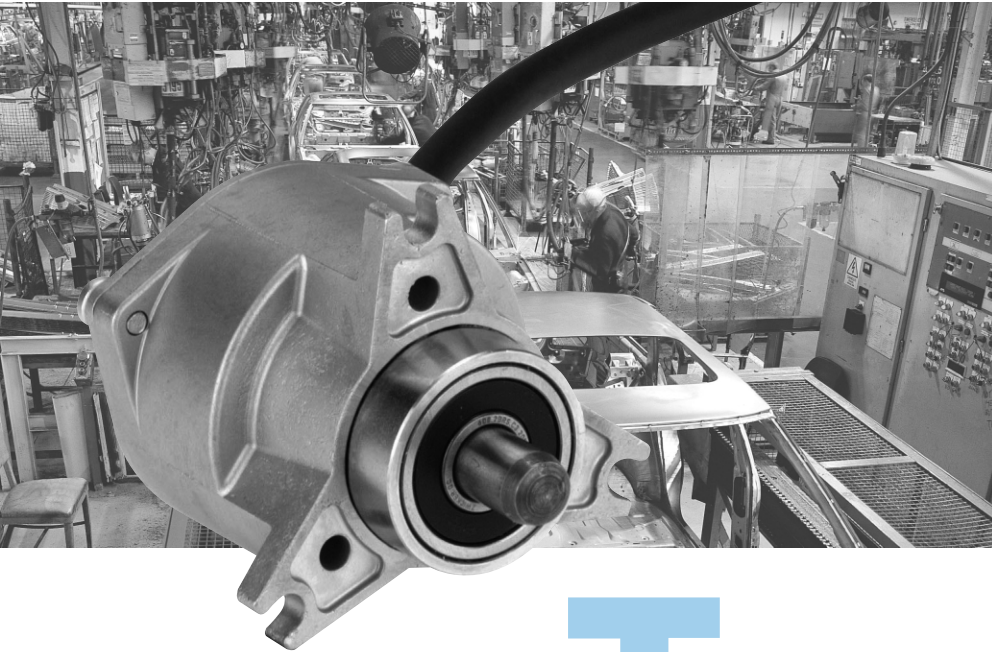


DKS 40: Incremental Encoder



Number of lines
1 to 2,048
Incremental Encoder

The DKS 40 Incremental Encoder offers exceptional quality for its price and its range of application. Its housing is a solid zinc die-casting and is extremely compact in its design, having an external diameter of only 50 mm. As a consequence, valuable space can be spared when installed.

By adopting highly successful Mini-Disc technology, the DKS 40 is extremely robust and can resist high levels of shock and vibration. Besides has the DKS 40 a very high protection class IP 64.


Specify your individual 50 mm dia. Encoder.

Options available:

- Interfaces Open Collector NPN, TTL/RS 422, HTL/push-pull.
- Face mount flange with solid shaft $\varnothing 8 \times 13$ mm,
- Output cable 0.5 m can be used radially or axially

Thanks to product flexibility there are numerous applications, for example in:

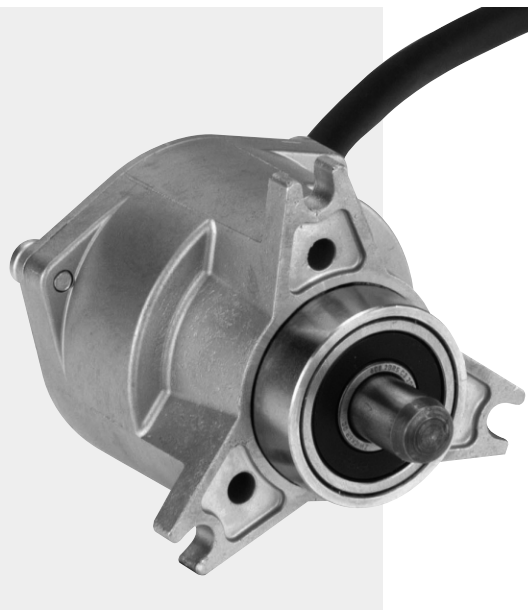
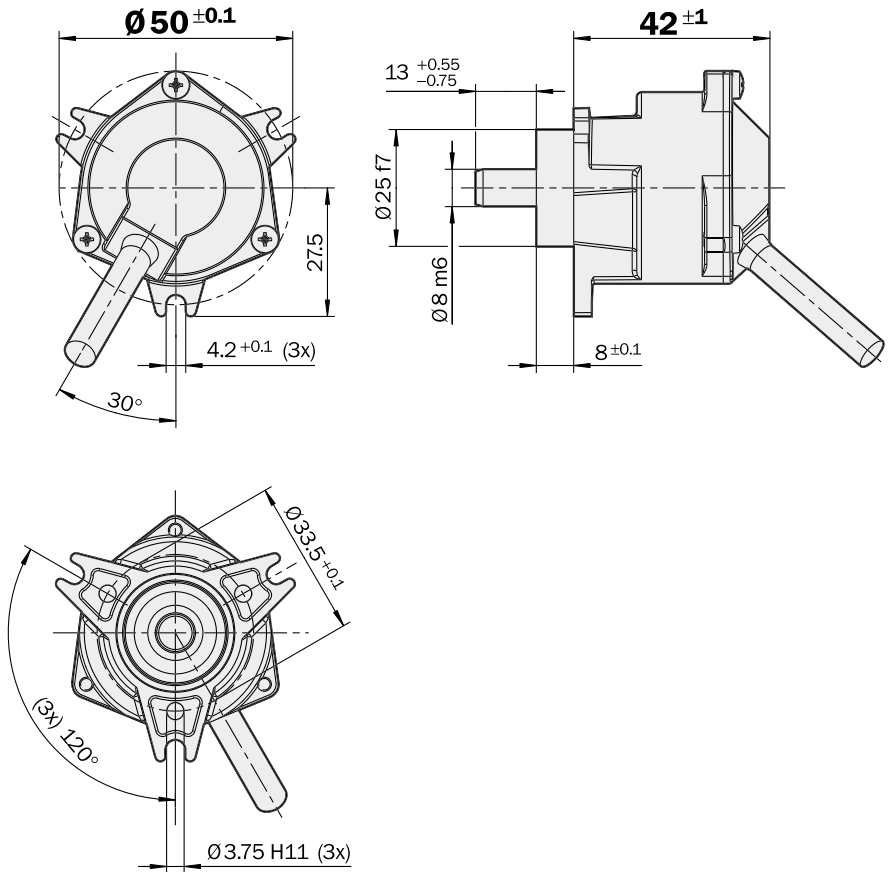
- machine tools
- textile machines
- wood processing machines
- packaging machines

 **Number of lines**
1 to 2,048

Incremental Encoder

- Cable outlet
- Enclosure rating IP 64
- Electrical Interfaces
Open Collector NPN,
TTL,
HTL

Dimensional drawing face mount flange



General tolerances according to DIN ISO 2768-mk

Wire allocation/cable 8 core

Colour of wires	Signal for OC	Signal for TTL and HTL	Explanation
Red	+U _s	+U _s	Supply voltage ¹⁾
Blue	GND	GND	Zero volt connection for the encoder
White	A	A	Signal line
Pink	B	B	Signal line
Lilac	Z	Z	Signal line
Brown	N. C.	\bar{A}	Signal line
Black	N. C.	\bar{B}	Signal line
Yellow	N. C.	\bar{Z}	Signal line
Screen	Screen	Screen	Screen

¹⁾ Potential free to housing

N. C. = Not Connected



Accessories
Connection systems
Mounting systems

Technical data		DKS 40	DKS									
Number of lines (Z) per revolution		1 to 2,048										
Electrical Interfaces		4.5 ... 5.5 V, Open Coll. NPN, 3-channel										
		10 ... 30 V, Open Coll. NPN, 3-channel										
		4.5 ... 5.5 V, TTL/RS422, 6-channel										
		10 ... 30 V, HTL, 6-channel										
Mass		0.18 Kg										
Moment of inertia of the rotor		6 gcm ²										
Measuring step		90°/number of lines										
Reference signal	Number	1										
	Position	90° electr., logic. interlocked with A+B										
Error limits												
"binary" number of lines ¹⁾		± 0.09 degree										
"non-binary" number of lines ²⁾		± 0.13 degree										
Measuring step deviation												
binary number of lines		± 0.03 degree										
non-binary number of lines		± 0.07 degree										
Max. output frequency	Open Collector	50 KHz										
	TTL/RS422	200 KHz										
	HTL/push-pull	200 KHz										
Operating speed		6,000 min ⁻¹										
Angular acceleration		3.6 x 10 ⁹ rad/s ²										
Operating torque		0.15 Ncm										
Start up torque		0.2 Ncm										
Permissible shaft loading												
radial		40 N										
axial		20 N										
Bearing lifetime		2 x 10 ⁹ revolutions										
Working temperature range		0 ... + 60 °C										
Storage temperature range		- 40 ... + 70 °C										
Permissible relative humidity ³⁾		90 %										
EMC ⁴⁾												
Resistance												
to shocks ⁵⁾		50/7 g/ms										
to vibration ⁶⁾		20/10 ... 2000 g/Hz										
Protection class acc. IEC 60529		IP 64										
Operating voltage range		30 mA										
Operating current range at no load		40 mA										
Initialisation time after power on		40 ms										

¹⁾ „Binary“ number of lines
n is integer

²⁾ „Non binary“ number of lines
n is no integer

³⁾ Condensation of optical scanning
system not permitted

⁴⁾ To DIN EN 61000-6-2 and
DIN EN 61000-6-3

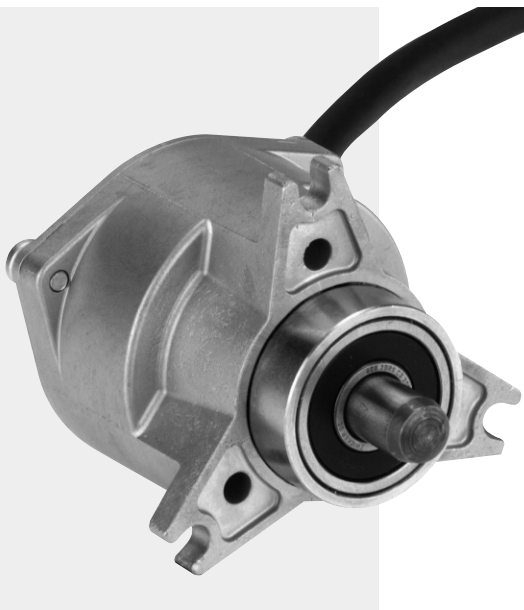
⁵⁾ To DIN EN 60068-2-27

⁶⁾ To DIN EN 60068-2-6

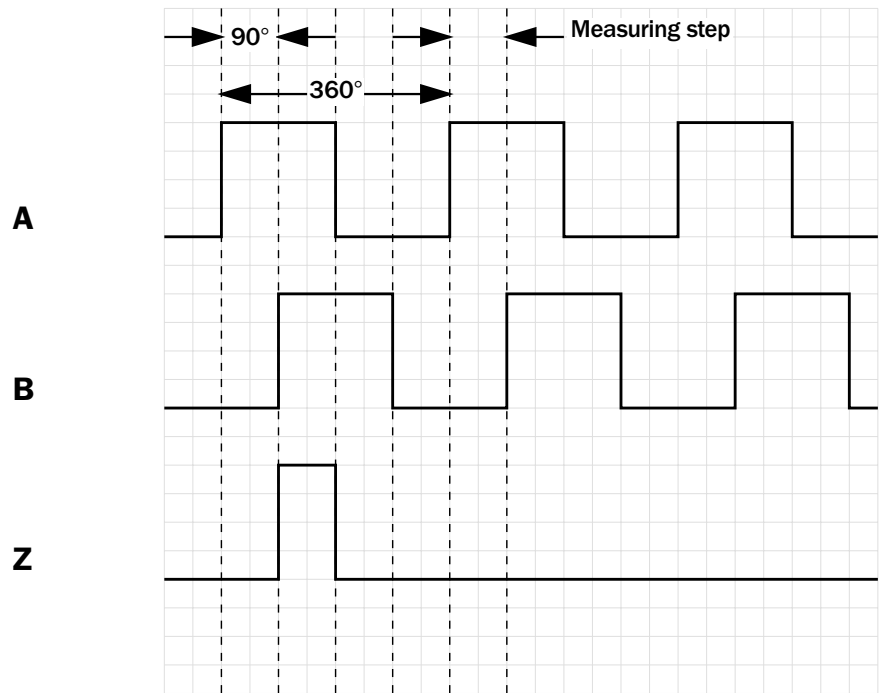
 **Number of lines**
1 to 2,048

Incremental Encoder

- Cable outlet
- Enclosure rating IP 64
- Electrical Interfaces
Open Collector NPN,
TTL,
HTL



Incremental pulse diagram



CW rotation when looking at the encoder shaft

\bar{A} , \bar{B} , \bar{Z} inverted signals to A, B, Z

Electrical interfaces

Supply voltage	4.5 ... 5.5 V	10 ... 30 V	4.5 ... 5.5 V	10 ... 30 V
Interfaces/drivers	Open Coll. NPN	Open Coll. NPN	TTL/RS422	HTL/push-pull



Accessories

- Connection systems
- Mounting systems

Order information

Incremental Encoder DKS 40, solid shaft

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	K	S	4	0	-		5	J					

Electrical interface 4.5 ... 5.5 V, Open Collector NPN, 3-channel = P <hr/> 10 ... 30 V, Open Collector NPN, 3-channel = R <hr/> 4.5 ... 5.5 V, TTL/RS422, 6-channel = A <hr/> 10 ... 30 V, HTL/push-pull, 6-channel = E	Mechanical interface Face mount flange, Solid shaft Ø 8 x 13 mm = 5	Connection type Cable 8 core, universal 0,5 m ¹⁾ = J	Number of lines Always 5 characters in clear text 1 with leading zeros
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¹⁾ The universal cable output is positioned so that a kink-free cable run is possible in radial or axial direction.

1 Number of lines (Z) per revolution

00010	00050	00200	00256	00500	00720	01024	02048
00020	00100	00250	00360	00512	01000	02000	others on request

Order example: Incremental Encoder DKS 40

4.5 ... 5.5 Volt, TTL; face mount flange, cable 8 core, number of lines: 360

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	K	S	4	0	-	A	5	J	0	0	3	6	0

Please enter your individual encoder here

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	K	S	4	0	-		5	J					

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	K	S	4	0	-		5	J					

Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Point 10	Point 11	Point 12	Point 13	Point 14
D	K	S	4	0	-		5	J					