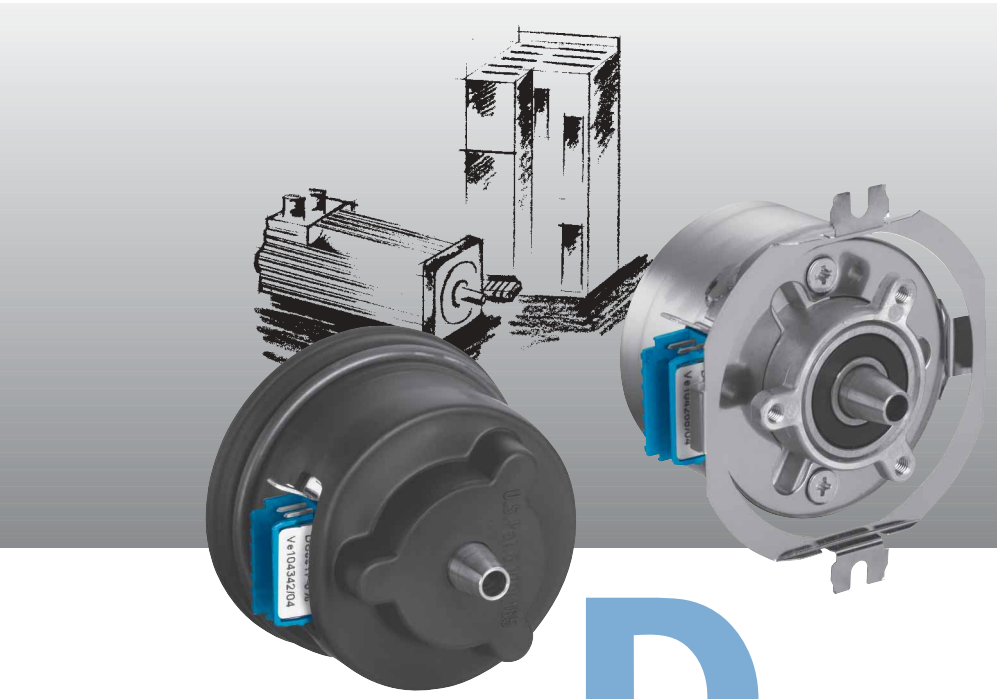
DiCoder® CNS50: Motor Feedback System for installation in electric motors

DATA SHEET



Incremental signals with resolutions up to 4,096 lines per revolution and commutation signals are available. Select the motor feedback system to suit your individual requirements.

Possible product variations:

· Plug-in shaft or tapered shaft with different stator supports

· 2 to 8 pole pairs

DiCoder CNS50 series of motor feedback systems are used world-wide in many different applications and environments.

Number of lines 1,000 up to 4,096

Motor Feedback System

SICK
Sensor Intelligence.

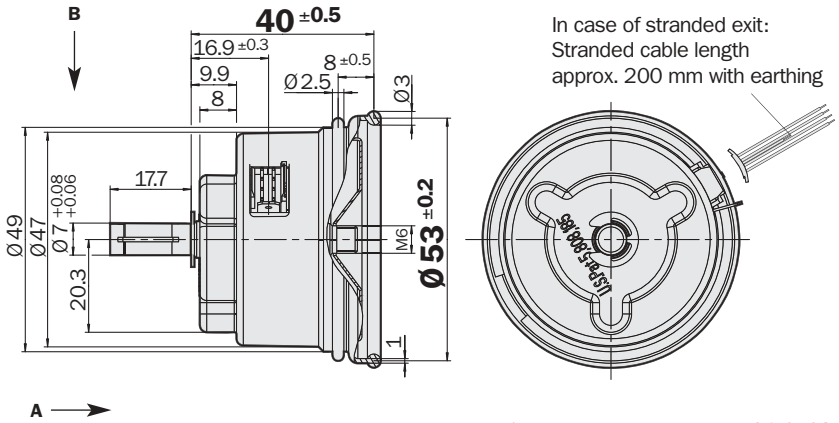
04-2006

Number of lines
1,000 up to 4,096

Motor Feedback System

- Output driver for incremental signals and commutation signals to EIA 422
- Working temperature range up to + 100 °C
- Two square-wave signals (90° off-set), reference pulse and the respective inverted signals
- Commutation signals R, S, T

Dimensional drawing CNS50, rubber support Ø 50



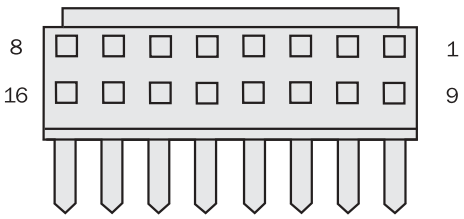
General tolerances to DIN ISO 2768-mk

PIN and wire allocation/16 pin connector

PIN	Signal	Colour of Wires	Explanation
1	GND	blue	Ground connection
2	R	white/green	Commutation signal
3	S	white/yellow	Commutation signal
4	T	white/grey	Commutation signal
5	Z	violet	Reference signal
6	B	pink	Incremental signal
7	A	white	Incremental signal
8	N. C.	–	Not connected
9	U_s	red	Supply voltage 5 V ± 10 %
10	$\overline{R}$	white/pink	Commutation signal inverted
11	$\overline{S}$	white/blue	Commutation signal inverted
12	$\overline{T}$	white/red	Commutation signal inverted
13	$\overline{Z}$	yellow	Reference signal inverted
14	$\overline{B}$	black	Incremental signal inverted
15	$\overline{A}$	brown	Incremental signal inverted
16	N. C.	–	Not connected

Caution: Pins labelled "N. C." must not be occupied!

The encoder housing must be connected to the screen. Use the screen connection strand (200 mm, supplied) for this. It is included in the supply.



View of the plug-in face

Accessories

Connection technology

Technical Data according to DIN 32878		Plug-in Shaft CNS50	CNS									
Number of lines per revolution		1,000, 1,024, 2,000, 2,048, 4,000, 4,096										
Commutation signals		(See diagram, page 4) other										
		commutation on request										
Dimensions		mm (see dimensional drawing)										
Mass		0.1 kg										
Inertial rotor moment		10 gcm^2										
Measurement step		90°/number of lines										
Reference signal	No. off	1										
	Position	90° electr., logically linked with A and B										
Max. operating speed		9,000 min^{-1}										
Working speed		6,000 min^{-1}										
Max. angular acceleration		0.2 x 10^6 1/s^2										
Operating torque		0.2 Ncm										
Starting torque		0.4 Ncm										
Permissible shaft movement												
static	radial/axial	± 0.5 mm/± 0.75 mm										
dynamic	radial/axial	± 0.05 mm/± 0.25 mm										
Angular motion, perpendicular to the rotational axis												
static		± 0.005 mm/mm										
dynamic		± 0.0025 mm/mm										
Life of ball bearings		3.6 x 10^9 revolutions										
Working temperature range		0 … + 100 °C										
Storage temperature range [1]		– 40 … + 125 °C										
Permissible relative humidity [2]		90 %										
Resistance												
to shocks [3]		100/10 g/ms										
to vibration [4]		20/10 … 2000 g/Hz										
Protection class acc. IEC 60529 [5]		IP 40										
EMC [6]												
Operating voltage range		5 V ± 10 %										
Max. operating current, no load		50 mA										
Interface details:												
Output driver		EIA Standard RS 422										
Output signal sequence		See pulse-time diagram (page 4)										
Signal tolerance												
tx1 … tx4 max. at 300 kHz		1.5 x 1/4 T										

[1] Without packaging

[2] Condensation not permissible

[3] To DIN EN 60068-2-27

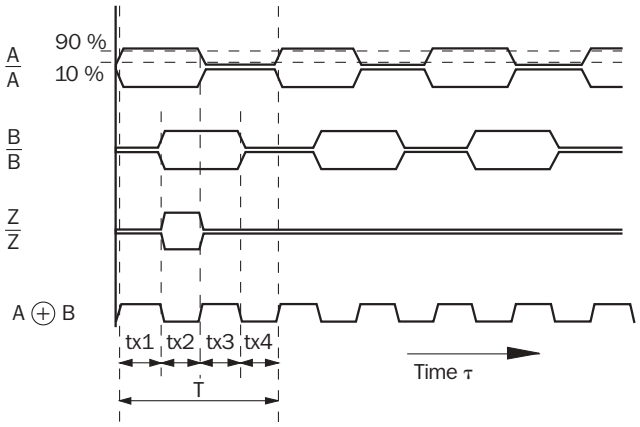
[4] To DIN EN 60068-2-6

[5] With mating connector inserted

[6] To DIN EN 61000-6-2 and DIN 61000-6-3
The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.
Users must perform their own tests when other screen designs are used.

Incremental signals

At constant speed, looking at the input shaft, and clockwise rotation.



By linking the two signals A and B, an output signal is created whose cycle durations tx1 … tx4 have different sizes.

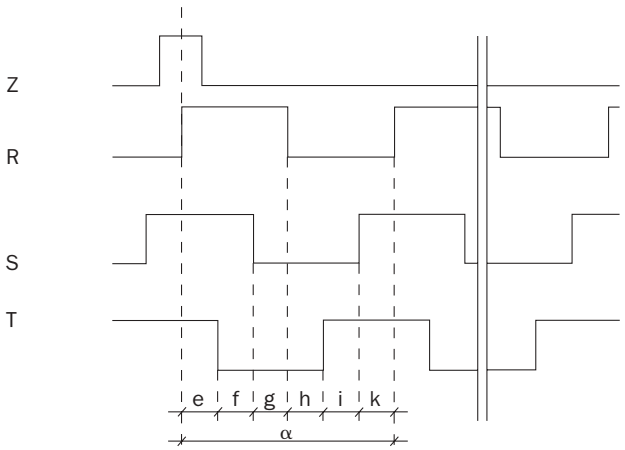
The differences are determined:

1. by the mark/space ratio tolerance of the individual channels
2. by the tolerance in the 90° phase shift between A and B
3. by the frequency

Ideally, the times tx1 … tx4 should always be 1/4 of the cycle duration T.

The typical output frequency of the encoder is defined such that the max. time tx is smaller than 1.5 x T/4.

Pulse-time diagram



Pole pairs	Number of poles	e, f, g, h, i, k	α
2	4	30°	180°
3	6	20°	120°
4	8	15°	90°
6	12	10°	60°
8	16	7,5°	45°

The angular data is related to a mechanical shaft rotation.

Precision of the signals R, S, T ± 1°.

Ordering information CNS50

Motor Feedback System CNS50 with plug-in shaft, diameter 7 mm

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**A**				**X**		

Type of connection (Position 9)	
Connector	= **A**
Stranded cable	= **V**

Lines per revolution (Positions 10, 11)	
1,000	= **01**
1,024	= **10**
2,000	= **02**
2,048	= **11**
4,000	= **04**
4,096	= **12**

Pole pairs (Positions 13, 14)	
2 pole pairs	= **02**
3 pole pairs	= **03**
4 pole pairs	= **04**
6 pole pairs	= **06**
8 pole pairs	= **08**

Ordering example: Motor Feedback System CNS50, plug-in Shaft 7 mm, rubber support Ø 50
4,096 lines, 3 pole pairs, connector exit

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**A**	**A**	**1**	**2**	**X**	**0**	**3**

Please enter your individual encoder here

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**A**				**X**		

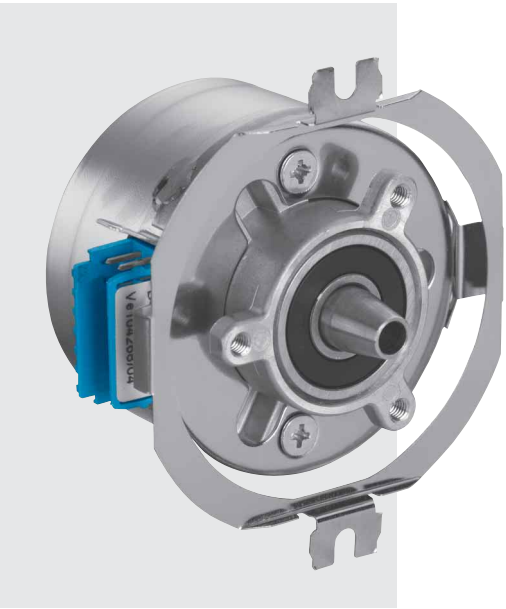
Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**A**				**X**		

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**A**				**X**		

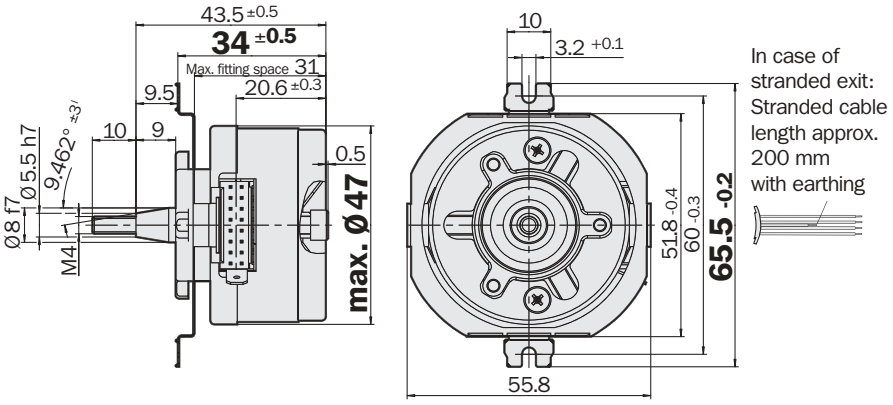
Number of lines 1,000 up to 4,096

Motor Feedback System

- Output driver for incremental signals and commutation signals to EIA 422
- Working temperature range up to + 100 °C
- Two square-wave signals (90° off-set), reference pulse and the respective inverted signals
- Commutation signals R, S, T



Dimensional drawing CNS50, spring mounting support Ø 66



General tolerances to DIN ISO 2768-mk

PIN and wire allocation/16 pin connector

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5	Z	violet	Reference signal
6	B	pink	Incremental signal
7	A	white	Incremental signal
8	N. C.	–	Not connected
9	U_s	red	Supply voltage 5 V ± 10 %
10	$\overline{R}$	white/pink	Commutation signal inverted
11	$\overline{S}$	white/blue	Commutation signal inverted
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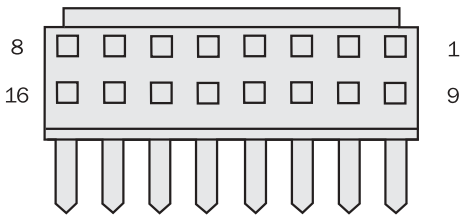
15	$\overline{A}$	brown	Incremental signal inverted
16	N. C.	–	Not connected

Caution: Pins labelled "N. C." must not be occupied!

The encoder housing must be connected to the screen. Use the screen connection strand (200 mm, supplied) for this. It is included in the supply.



View of the plug-in face

Accessories

Connection technology

Technical Data according to DIN 32878		Tapered Shaft CNS50	CNS									
Number of lines per revolution		1,000, 1,024, 2,000, 2,048, 4,000, 4,096										
Commutation signals		(See diagram, page 8) other										
		commutation on request										
Dimensions		mm (see dimensional drawing)										
Mass		0.1 kg										
Inertial rotor moment		10 gcm^2										
Measurement step		90°/number of lines										
Reference signal	No. off	1										
	Position	90° electr., logically linked with A and B										
Max. operating speed		9,000 min^{-1}										
Working speed		6,000 min^{-1}										
Max. angular acceleration		0.2 x 10^6 1/s^2										
Operating torque		0.2 Ncm										
Starting torque		0.4 Ncm										
Permissible shaft movement												
static	radial/axial	± 0.5 mm/± 0.75 mm										
dynamic	radial/axial	± 0.05 mm/± 0.25 mm										
Angular motion, perpendicular to the rotational axis												
static		± 0.005 mm/mm										
dynamic		± 0.0025 mm/mm										
Life of ball bearings		3.6 x 10^9 revolutions										
Working temperature range		0 … + 100 °C										
Storage temperature range [1]		– 40 … + 125 °C										
Permissible relative humidity [2]		90 %										
Resistance												
to shocks [3]		100/10 g/ms										
to vibration [4]		20/10 … 2000 g/Hz										
Protection class acc. IEC 60529 [5]		IP 40										
EMC [6]												
Operating voltage range		5 V ± 10 %										
Max. operating current, no load		50 mA										
Interface details:												
Output driver		EIA Standard RS 422										
Output signal sequence		See pulse-time diagram (page 8)										
Signal tolerance												
tx1 … tx4 max. at 300 kHz		1.5 x 1/4 T										

[1] Without packaging

[2] Condensation not permissible

[3] To DIN EN 60068-2-27

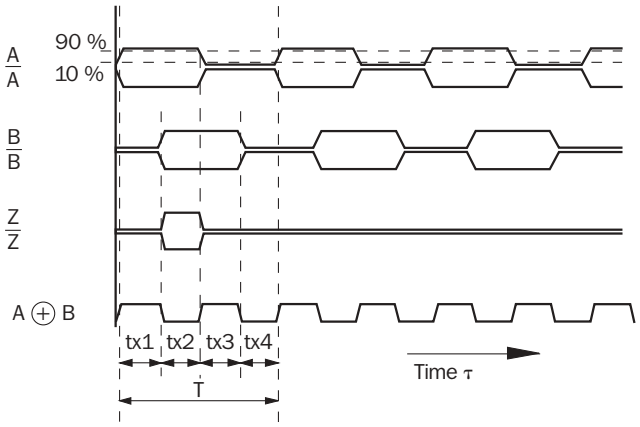
[4] To DIN EN 60068-2-6

[5] With mating connector inserted

[6] To DIN EN 61000-6-2 and DIN 61000-6-3
The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.
Users must perform their own tests when other screen designs are used.

Incremental signals

At constant speed, looking at the input shaft, and clockwise rotation.

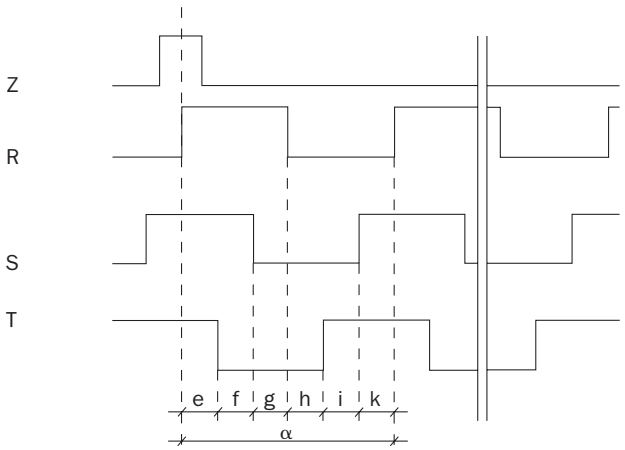


By linking the two signals A and B, an output signal is created whose cycle durations tx1 … tx4 have different sizes.
The differences are determined:

1. by the mark/space ratio tolerance of the individual channels
2. by the tolerance in the 90° phase shift between A and B
3. by the frequency

Ideally, the times tx1 … tx4 should always be 1/4 of the cycle duration T.
The typical output frequency of the encoder is defined such that the max. time tx is smaller than 1.5 x T/4.

Pulse-time diagram



Pole pairs	Number of poles	e, f, g, h, i, k	α
2	4	30°	180°
3	6	20°	120°
4	8	15°	90°
6	12	10°	60°
8	16	7,5°	45°

The angular data is related to a mechanical shaft rotation.

Precision of the signals R, S, T ± 1°.

Ordering information CNS50

Motor Feedback System CNS50 with tapered shaft

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	N	S	5	0	–	A	F				X		

Position 9: Type of connection; Positions 10–11: Lines per revolution; Positions 13–14: Pole Pairs

Type of connection	
Connector	= A
Stranded cable	= V

Lines per revolution	
1,000	= 01
1,024	= 10
2,000	= 02
2,048	= 11
4,000	= 04
4,096	= 12

Pole Pairs	
2 pole pairs	= 02
3 pole pairs	= 03
4 pole pairs	= 04
6 pole pairs	= 06
8 pole pairs	= 08

Ordering example: Motor Feedback System CNS50, tapered shaft, spring mounting support Ø 66
4,096 lines, 3 pole pairs, connector exit

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	N	S	5	0	–	A	F	A	1	2	X	0	3

Please enter your individual encoder here

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	N	S	5	0	–	A	F				X		

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	N	S	5	0	–	A	F				X		

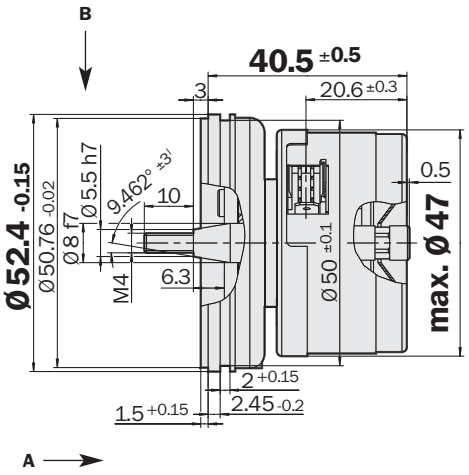
Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	N	S	5	0	–	A	F				X		

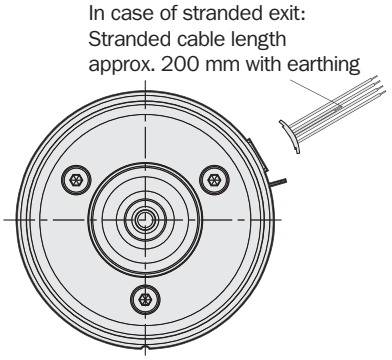
Number of lines 1,000 up to 4,096

Motor Feedback System

- Output driver for incremental signals and commutation signals to EIA 422
- Working temperature range up to + 100 °C
- Two square-wave signals (90° off-set), reference pulse and the respective inverted signals
- Commutation signals R, S, T

Dimensional drawing CNS50, resolver support Ø 52





General tolerances to DIN ISO 2768-mk

PIN and wire allocation/16 pin connector

PIN	Signal	Colour of Wires	Explanation
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11	$\overline{S}$	white/blue	Commutation signal inverted
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16	N. C.	–	Not connected

Caution: Pins labelled "N. C." must not be occupied!

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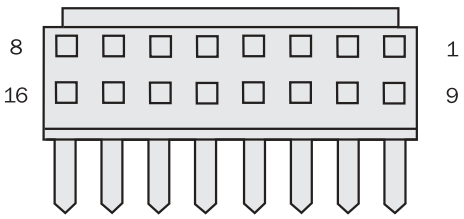

View of the plug-in face

Accessories

Connection technology

Technical Data according to DIN 32878		Tapered Shaft CNS50	CNS
Number of lines per revolution		1,000, 1,024, 2,000, 2,048, 4,000, 4,096	
Commutation signals		(See diagram, page 12) other	
		commutation on request	
Dimensions		mm (see dimensional drawing)	
Mass		0.1 kg	
Inertial rotor moment		10 gcm^2	
Measurement step		90°/number of lines	
Reference signal	No. off	1	
	Position	90° electr., logically linked with A and B	
Max. operating speed		9,000 min^{-1}	
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Max. angular acceleration		0.2 x 10^6 $1/s^2$	
Operating torque		0.2 Ncm	
Starting torque		0.4 Ncm	
Permissible shaft movement			
static	radial/axial	± 0.25 mm/± 0.75 mm	
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Angular motion, perpendicular to the rotational axis			
static		± 0.005 mm/mm	
dynamic		± 0.0025 mm/mm	
Life of ball bearings		3.6 x 10^9 revolutions	
Working temperature range		0 … + 100 °C	
Storage temperature range [1]		– 40 … + 125 °C	
Permissible relative humidity [2]		90 %	
Resistance			
to shocks [3]		100/10 g/ms	
to vibration [4]		20/10 … 2000 g/Hz	
Protection class acc. IEC 60529 [5]		IP 40	
EMC [6]			
Operating voltage range		5 V ± 10 %	
Max. operating current, no load		50 mA	
Interface details:			
Output driver		EIA Standard RS 422	
Output signal sequence		See pulse-time diagram (page 12)	
Signal tolerance			
tx1 … tx4 max. at 300 kHz		1.5 x 1/4 T	

[1] Without packaging

[2] Condensation not permissible

[3] To DIN EN 60068-2-27

[4] To DIN EN 60068-2-6

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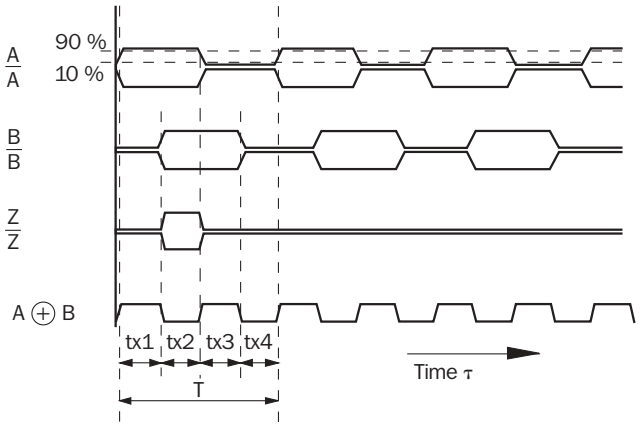
Incremental signals

At constant speed, looking at the input shaft, and clockwise rotation.



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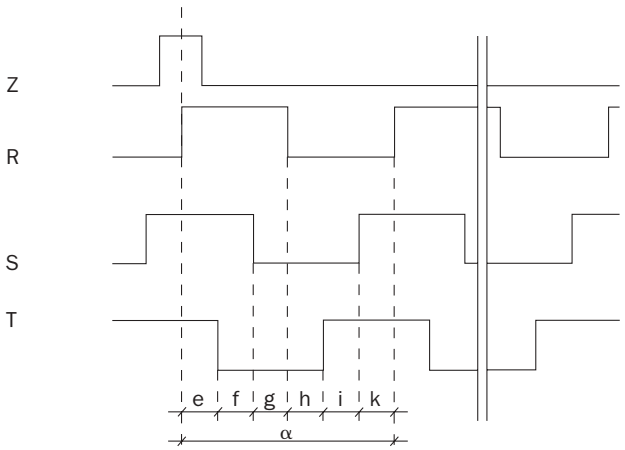
Ideally, the times tx1 … tx4 should always be 1/4 of the cycle duration T.
The typical output frequency of the encoder is defined such that the max. time tx is smaller than 1.5 x T/4.

Pulse-time diagram



Pole pairs	Number of poles	e, f, g, h, i, k	α
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The angular data is related to a mechanical shaft rotation.

Precision of the signals R, S, T ± 1°.

Ordering information CNS50

Motor Feedback System CNS50 with tapered shaft

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**G**				**X**		

Position 9:

Type of connection	
Connector	= **A**
Stranded cable	= **V**

Positions 10–11:

Lines per revolution	
1,000	= **01**
1,024	= **10**
2,000	= **02**
2,048	= **11**
4,000	= **04**
4,096	= **12**

Positions 13–14:

Pole Pairs	
2 pole pairs	= **02**
3 pole pairs	= **03**
4 pole pairs	= **04**
6 pole pairs	= **06**
8 pole pairs	= **08**

Ordering Example: Motor Feedback System CNS50, tapered shaft, resolver support Ø 52
4,096 lines, 3 pole pairs, connector exit

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**G**	**A**	**1**	**2**	**X**	**0**	**3**

Please enter your individual encoder here

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**G**				**X**		

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**G**				**X**		

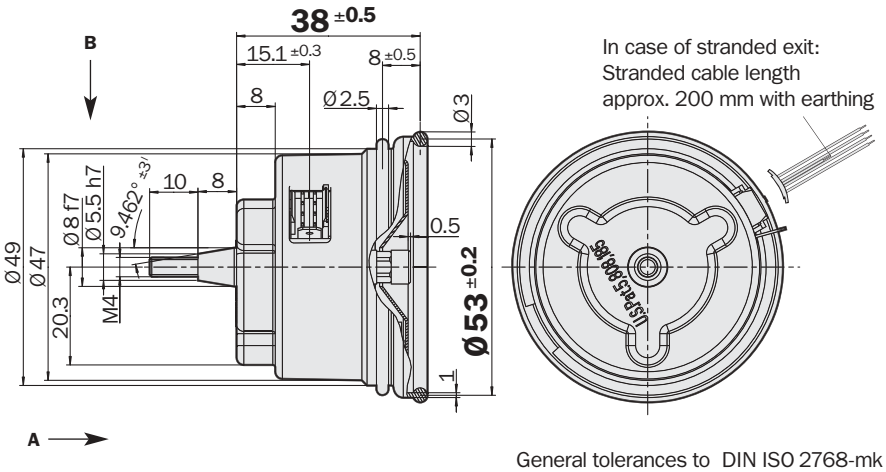
Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**G**				**X**		

Number of lines
1,000 up to 4,096

Motor Feedback System

- Output driver for incremental signals and commutation signals to EIA 422
- Working temperature range up to + 100 °C
- Two square-wave signals (90° off-set), reference pulse and the respective inverted signals
- Commutation signals R, S, T

Dimensional drawing CNS50, rubber support Ø 50



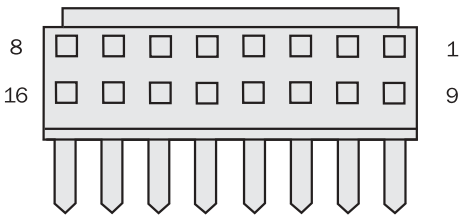
General tolerances to DIN ISO 2768-mk

PIN and wire allocation/16 pin connector

PIN	Signal	Colour of Wires	Explanation
1	GND	blue	Ground connection
2	R	white/green	Commutation signal
3	S	white/yellow	Commutation signal
4	T	white/grey	Commutation signal
5	Z	violet	Reference signal
6	B	pink	Incremental signal
7	A	white	Incremental signal
8	N. C.	–	Not connected
9	U_s	red	Supply voltage 5 V ± 10 %
10	$\overline{R}$	white/pink	Commutation signal inverted
11	$\overline{S}$	white/blue	Commutation signal inverted
12	$\overline{T}$	white/red	Commutation signal inverted
13	$\overline{Z}$	yellow	Reference signal inverted
14	$\overline{B}$	black	Incremental signal inverted
15	$\overline{A}$	brown	Incremental signal inverted
16	N. C.	–	Not connected

Caution: Pins labelled "N. C." must not be occupied!

The encoder housing must be connected to the screen. Use the screen connection strand (200 mm, supplied) for this. It is included in the supply.



View of the plug-in face

Accessories

Connection technology

Technical Data according to DIN 32878	Tapered Shaft CNS50	CNS									

Number of lines per revolution		1,000, 1,024, 2,000, 2,048, 4,000, 4,096
Commutation signals		(See diagram, page 16) other
		commutation on request
Dimensions		mm (see dimensional drawing)
Mass		0.1 kg
Inertial rotor moment		10 gcm^2
Measurement step		90°/number of lines
Reference signal	No. off	1
	Position	90° electr., logically linked with A and B
Max. operating speed		9,000 min^{-1}
Working speed		6,000 min^{-1}
Max. angular acceleration		0.2 x 10^6 1/s^2
Operating torque		0.2 Ncm
Starting torque		0.4 Ncm
Permissible shaft movement		
static	radial/axial	± 0.5 mm/± 0.75 mm
dynamic	radial/axial	± 0.05 mm/± 0.25 mm
Angular motion, perpendicular to the rotational axis		
static		± 0.005 mm/mm
dynamic		± 0.0025 mm/mm
Life of ball bearings		3.6 x 10^9 revolutions
Working temperature range		0 … + 100 °C
Storage temperature range [1]		– 40 … + 125 °C
Permissible relative humidity [2]		90 %
Resistance		
to shocks [3]		100/10 g/ms
to vibration [4]		20/10 … 2000 g/Hz
Protection class acc. IEC 60529 [5]		IP 40
EMC [6]		
Operating voltage range		5 V ± 10 %
Max. operating current, no load		50 mA
Interface details:		
Output driver		EIA Standard RS 422
Output signal sequence		See pulse-time diagram (page 16)
Signal tolerance		
tx1 … tx4 max. at 300 kHz		1.5 x 1/4 T

[1] Without packaging

[2] Condensation not permissible

[3] To DIN EN 60068-2-27

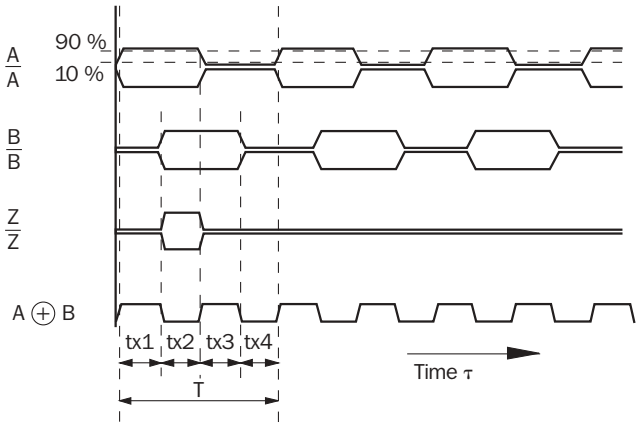
[4] To DIN EN 60068-2-6

[5] With mating connector inserted

[6] To DIN EN 61000-6-2 and DIN 61000-6-3
The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.
Users must perform their own tests when other screen designs are used.

Incremental signals

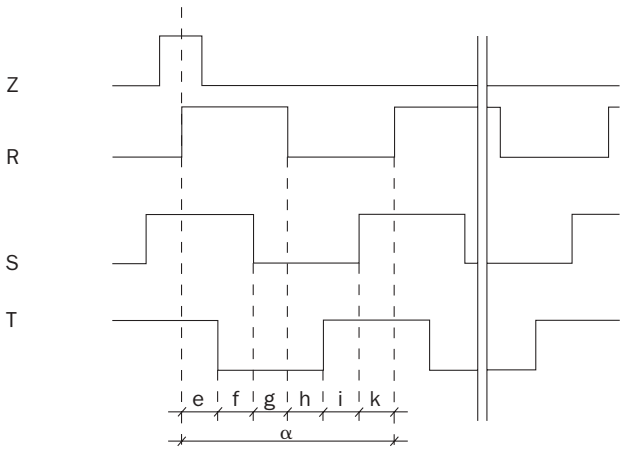
At constant speed, looking at the input shaft, and clockwise rotation.



By linking the two signals A and B, an output signal is created whose cycle durations tx1 … tx4 have different sizes.
The differences are determined:
1. by the mark/space ratio tolerance of the individual channels
2. by the tolerance in the 90° phase shift between A and B
3. by the frequency

Ideally, the times tx1 … tx4 should always be 1/4 of the cycle duration T.
The typical output frequency of the encoder is defined such that the max. time tx is smaller than 1.5 x T/4.

Pulse-time diagram



Pole pairs	Number of poles	e, f, g, h, i, k	α
2	4	30°	180°
3	6	20°	120°
4	8	15°	90°
6	12	10°	60°
8	16	7,5°	45°

The angular data is related to a mechanical shaft rotation.

Precision of the signals R, S, T ± 1°.

Ordering information CNS50

Motor Feedback System CNS50 with tapered shaft

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**E**				**X**		

Position 9: Type of connection; Positions 10–11: Lines per revolution; Positions 13–14: Pole Pairs

Type of connection	
Connector	= **A**
Stranded cable	= **V**

Lines per revolution	
1,000	= **01**
1,024	= **10**
2,000	= **02**
2,048	= **11**
4,000	= **04**
4,096	= **12**

Pole Pairs	
2 pole pairs	= **02**
3 pole pairs	= **03**
4 pole pairs	= **04**
6 pole pairs	= **06**
8 pole pairs	= **08**

Ordering example: Motor Feedback System CNS50, tapered shaft, rubber support Ø 50
4,096 lines, 3 pole pairs, connector exit

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**E**	**A**	**1**	**2**	**X**	**0**	**3**

Please enter your individual encoder here

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**E**				**X**		

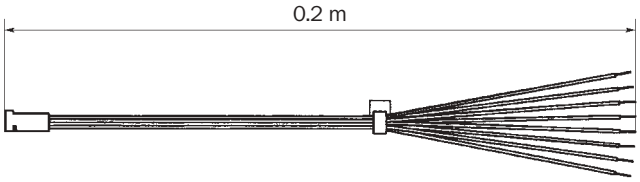
Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**E**				**X**		

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9	Position 10	Position 11	Position 12	Position 13	Position 14
C	**N**	**S**	**5**	**0**	**–**	**A**	**E**				**X**		

Dimensional drawings and ordering information

Stranded cable/connector , straight, 14 wires, 14 x 0.24 mm²

Type	Part no.	Contacts	Wire length
DOL-0B14-G0M2XB3	2031082	16	0.2 m



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