

Encoders without bearings - incremental

Combination of sensor / magnetic wheel

Max. 1024 pulses per revolution

MDFK 08



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Features

- Magnetic sensor with magnetic wheel
- Resolution max. 4096 steps
- Output signals A 90° B or A 90° B +N
- Output circuits: push-pull and RS422
- Non-contact, wear-free sensing system
- High resistance to dirt
- Narrow mounting design

Technical data - electrical ratings

Pulses per revolution	256...1024
Interpolation	8-fold, 16-fold
Reference signal	Zero pulse, width 90°
Output frequency	≤1.6 MHz (8-fold interpolation) ≤3.2 MHz (16-fold interpolation)
System accuracy	±0.5°
Jitter	≤15 %

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Voltage supply	8...30 VDC
Consumption w/o load	≤30 mA
Switching current max.	50 mA
Output stages	Push-pull short-circuit proof
Output signals	A 90° B A 90° B, 0
Reverse polarity protection	Yes, to GND
Voltage drop	<2 VDC (I=20 mA)

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Voltage supply	5 VDC ±5 %
Consumption w/o load	≤15 mA
Switching current max.	RS422 specific
Output stages	RS422
Output signals	A 90° B + inverted A 90° B, N + inverted
Reverse polarity protection	No
Voltage drop	RS422 specific

Technical data - mechanical design

Dimensions W x H x L	15 x 8.5 x 45.5 mm
Shaft type	ø6...25 mm (through hollow shaft)
Protection DIN EN 60529	IP 67
Operating temperature	-25...+85 °C
Working distance	<0.6 mm
Fastening torque	0.4 Nm
Resistance	DIN EN 60068-2-6 Vibration 20 g, 10-2000 Hz DIN EN 60068-2-27 Shock 100 g, 6 ms
Material	Housing: PC
Relative humidity	95 %
Connection	Cable 2 m
Weight approx.	105 g

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Part number

Push-pull

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	Interface / Interpolation
2101	A/B / 8-fold
2124/N16	A/B / 16-fold
8124/N8	A/B/N / 8-fold
8124	A/B/N / 16-fold

RS422

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	Interface / Interpolation
7101	A/B + inv. / 8-fold
7105/N16	A/B + inv. / 16-fold
8101	A/B/N + inv. / 8-fold
8105/N16	A/B/N + inv. / 16-fold

Selection of sensor head / magnetic wheel

Required pulse per turn	Sensor interpolation	Number of poles magnetic wheel
256	8-fold	32
400	8-fold	50
512	16-fold	32
800	16-fold	50
1024	16-fold	64
Other pulses on request		

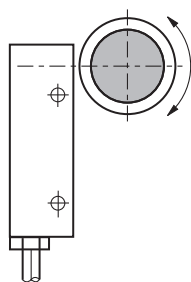
Accessories

Mounting accessories

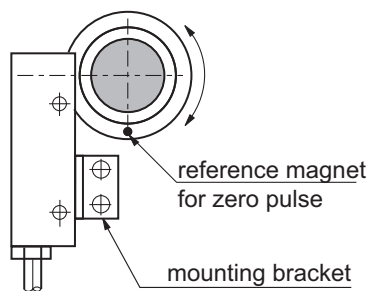
10134683 Mounting angle for MDFK08 3-channel

Rotational or linear direction

2-channel

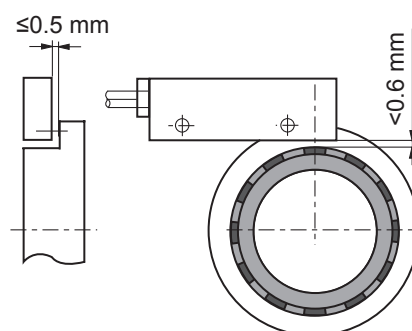


3-channel

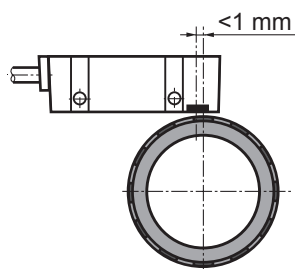


CHA is leading CHB by 90° when rotating CW

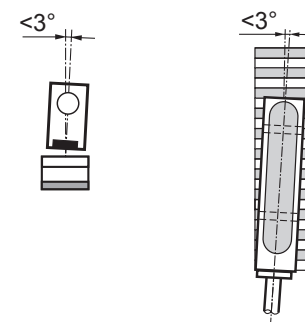
Working distance



Axial misalignment



Angular misalignment



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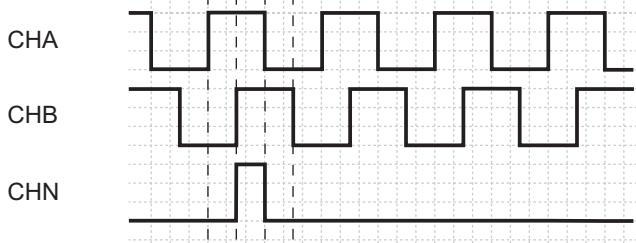
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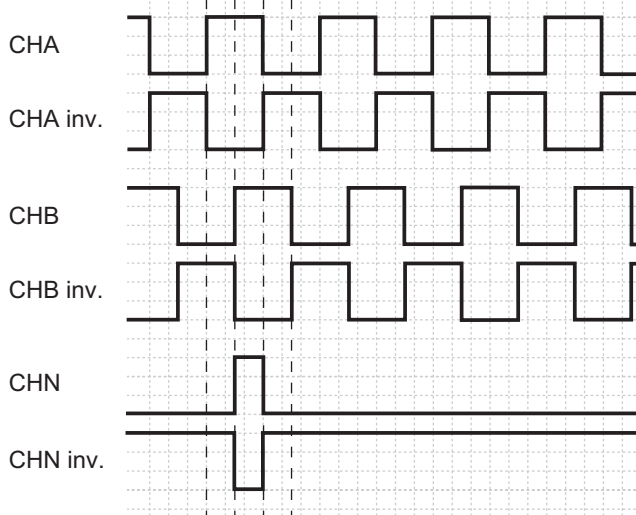
Output signals

push-pull



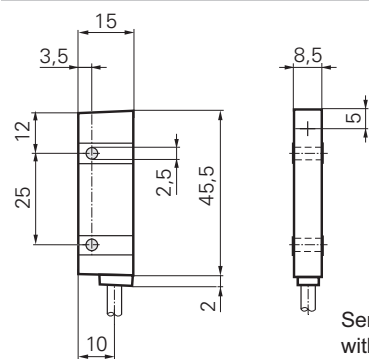
3-channel version with zero-pulse (CHN)
2-channel version without zero-pulse

RS422



3-channel-version with zero-pulse (CHN/CHN inv.)
3-channel-version with zero-pulse

Dimensions



Sensor can also be mounted with self-tapping special screws (PT KA30)

Terminal assignment

Push-pull A 90° B (2-channel)

cable color		signals
brown	BN	+Vs
blue	BU	0 V
black	BK	CHA
white	WH	CHB

cable data PUR 4 x 0.25 mm²

Push-pull A 90° B, N (3-channel)

cable color		signals
brown	BN	+Vs
yellow	YE	CHB
green	GN	CHA
pink	PK	CHN
white	WH	0 V

cable data PUR 5 x 0.14 mm², shielded

RS422 A 90° B + inv. (2-channel)

cable color		signals
brown	BN	+Vs
green	GN	CHA
pink	PK	CHA inv.
yellow	YE	CHB
gray	GY	CHB inv.
white	WH	0 V

cable data PUR 6 x 0.14 mm²

RS422 A 90° B, N + inv. (3-channel)

cable color		signals
brown	BN	+Vs
green	GN	CHA
red	RD	CHA inv.
yellow	YE	CHB
blue	BU	CHB inv.
pink	PK	CHN
gray	GY	CHN inv.
white	WH	0 V

cable data PUR 8 x 0.14 mm², shielded

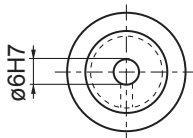
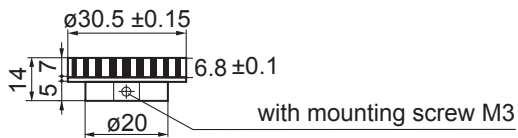
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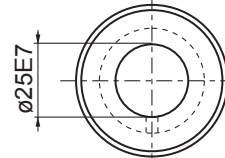
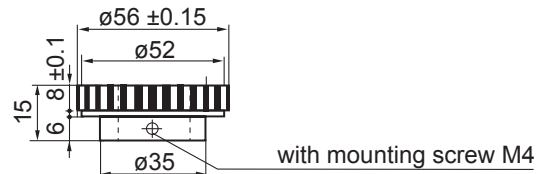
Max. 1024 pulses per revolution

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Magnetic wheel without reference magnet



max. speed 20 000 rpm



max. speed. 10 000 rpm

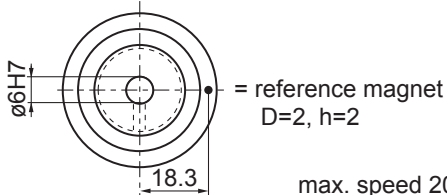
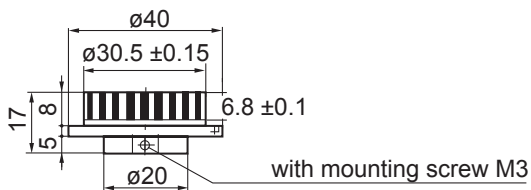
MSAP X32/031X006 magnetic wheel 32 pole w/o ref.

MSAP X36/031X006 magnetic wheel 36 pole w/o ref.

MSAP X50/056X025 magnetic wheel 50 pole w/o ref.

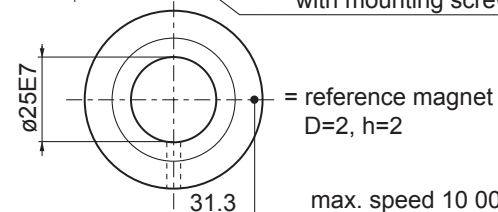
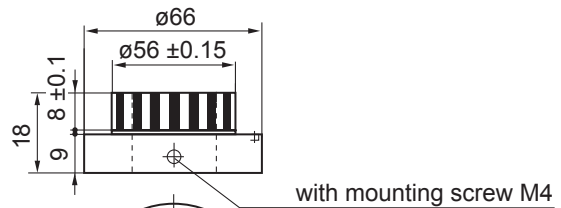
MSAP X64/056X025 magnetic wheel 64 pole w/o ref.

Magnetic wheel with reference magnet



MSAP Z32/040X006 magnetic wheel 32 pole with ref.

MSAP Z36/040X006 magnetic wheel 36 pole with ref.



MSAP Z50/066X025 magnetic wheel 50 pole with ref.

MSAP Z64/066X025 magnetic wheel 64 pole with ref.