

Encoders without bearing

Sensor head with integrated FPGA signal processing, magnetic sensing

Hollow shaft max. $\varnothing 180$ mm, incremental resolution 128...262144

MHGP 200 - HDmag



MHGP 200 - Version for axial screw mounting

Features

- Incremental encoder with magnetic sensing and without bearings
- Sensor head with integrated FPGA signal processing
- Sinewave or square-wave signals
- Resolution max. 262144 pulses
- Robust and free from wear
- Electronics is fully encapsulated
- High protection standard
- Large tolerances: axial ± 3 mm, radial max. 2.2 mm
- Very compact dimensions
- Simple mounting, easy adaptation
- Several mounting possibilities

Technical data - electrical ratings (square-wave)

Voltage supply	4.5...30 VDC
Consumption w/o load	≤ 160 mA
Resolution (steps/turn)	128...262144
Phase shift	$90^\circ \pm 10^\circ$
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Magnetic
Output frequency	≤ 2 MHz
Output signals	A+, B+, R+, A-, B-, R-
Output circuit	HTL (power linedriver) TTL (RS422)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Technical data - electrical ratings (sinewave)

Voltage supply	4.5...30 VDC
Consumption w/o load	≤ 160 mA
Resolution (steps/turn)	128...16384
Phase shift	$90^\circ \pm 5^\circ$
Reference signal	Zero pulse, width 90°
Sensing method	Magnetic
Output signals	A+, B+, R+, A-, B-, R-
Output circuit	Sine/cosine 1 Vpp
Harmonics share approx.	-40 dB
Offset sine/cosine amplitude	≤ 20 mV
Spectrum	400 kHz (-3 dB)
Overlaying constant share	≤ 20 mV
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Technical data - mechanical design

Sensor head	FPGA signal processing
Dimensions (flange)	$\varnothing 201.7$ mm
Shaft	$\varnothing 50...180$ mm hollow shaft
Protection DIN EN 60529	IP 67 (sensor head), IP 68 (encoder wheel)
Operating speed	≤ 4000 rpm
Operating temperature	$-20...+85$ °C
Resistance	DIN EN 60068-2-6 Vibration 30 g, 55-2000 Hz DIN EN 60068-2-27 Shock 300 g, 2 ms
Axial tolerance	± 3 mm (wheel/head)
Radial tolerance	0.1...2.2 mm (wheel/head)
Accuracy of magnetic scale	± 150 "
Connection	Connector M23, 12-pin
Approvals	CE conform, ROHS compliant

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Part number

MHGP 200 B5 **N** **C**

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See part number (pulses)

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Voltage supply / signals

- P 4,5...30 VDC / sine
- R 4,5...30 VDC / square-wave (TTL)
- T 5 VDC ±5 % / square-wave (TTL)
- H 10...30 VDC / square-wave (HTL)
- U 5...30 VDC / square-wave (5 VDC = TTL / 10...30 VDC = HTL universal)

|
Mounting type / hollow shaft (ø mm)

Screw mounting

G50, G75, G80, G85, G90, G95, G100, G110, G115, G120, G130, G150, G160, G170, G180

Clamping set mounting

Z70, Z75, Z80, Z85, Z90, Z95, Z100, Z110, Z120, Z130, Z140, Z150

Shrink fit mounting

H50, H75, H80, H85, H90, H95, H100, H110, H115, H120, H130, H150, H160, H170, H180

Clamping ring mounting

K70, K75, K80, K85, K90, K95, K100, K105, K110, K115, K120, K140, K150

Part number (pulses)

128	1024	8192	65536
256	2048	16384	131072
512	4096	32768	262144

Maximum pulses at sinewave signals 16384

Accessories

Connectors and cables

HEK 8	Sensor cable for encoders
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Encoders without bearing

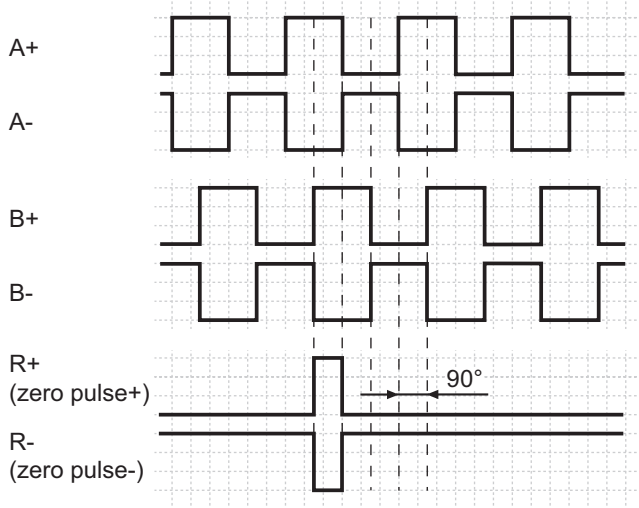
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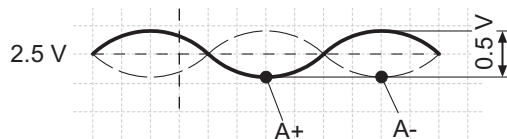
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Output signals

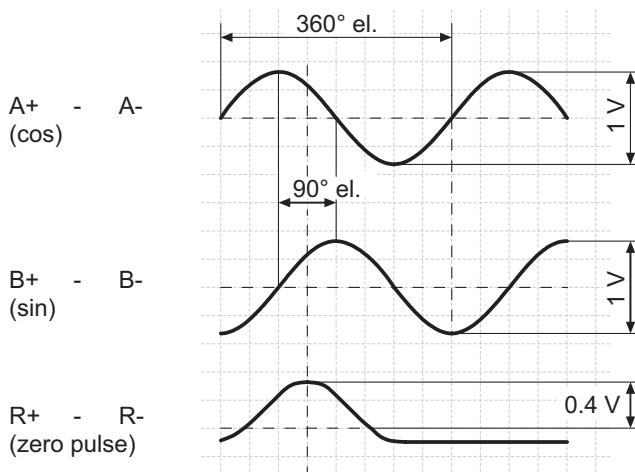
Version with square-wave signals HTL oder TTL
at positive rotating direction



Version with sinewave signals



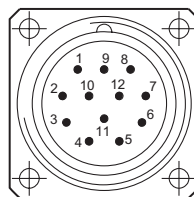
at positive rotating direction



Terminal assignment

View A - Connector M23, male contacts, counter-clockwise

Male	Assignment
Pin 1	B-
Pin 2	do not use
Pin 3	R+
Pin 4	R-
Pin 5	A+
Pin 6	A-
Pin 7	do not use
Pin 8	B+
Pin 9	do not use
Pin 10	0 V
Pin 11	do not use
Pin 12	UB



Encoders without bearing

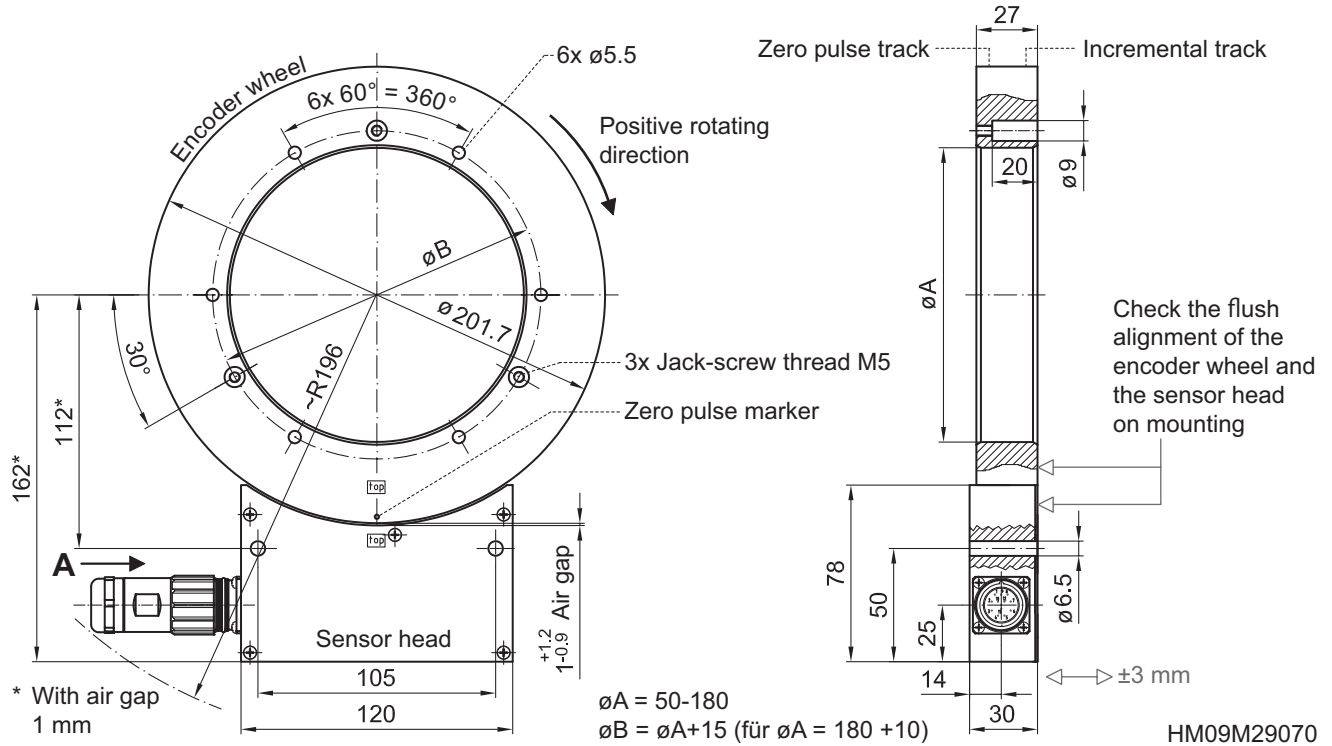
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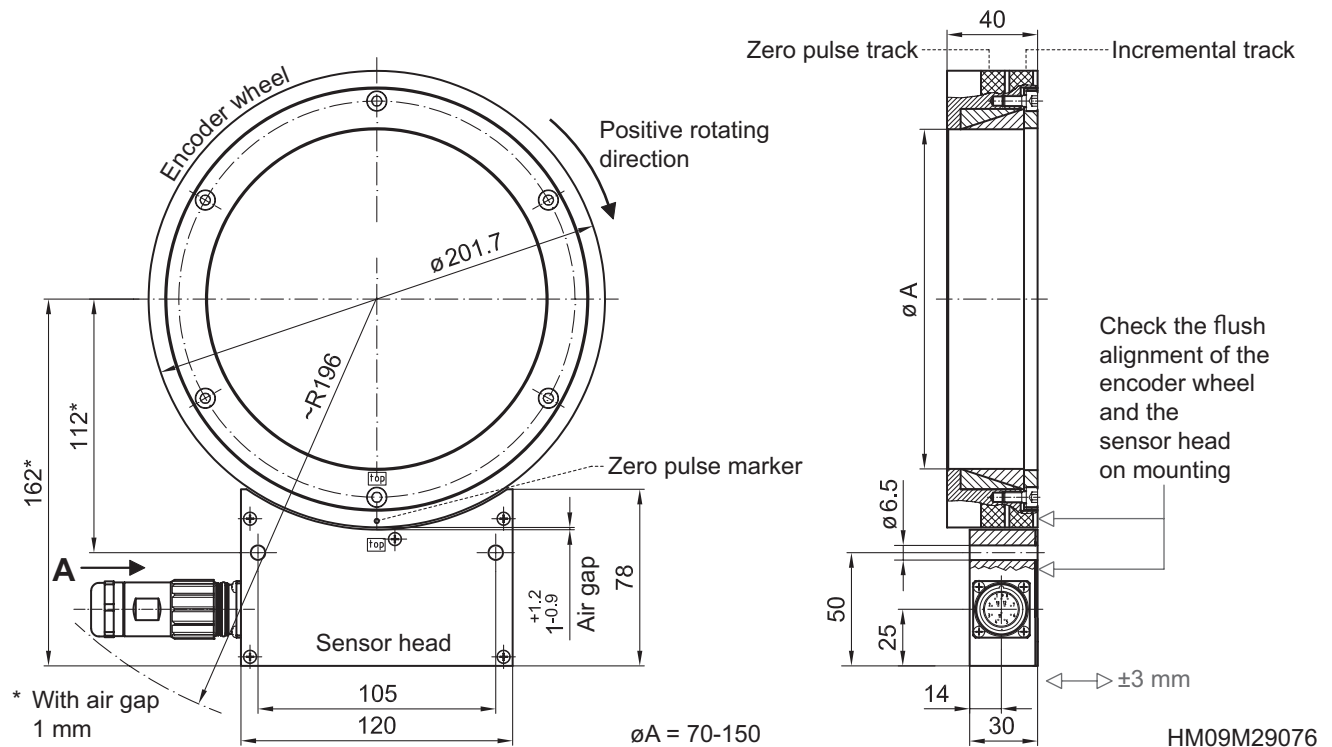
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Dimensions

Version for axial screw mounting



Version for clamping set mounting



Encoders without bearing

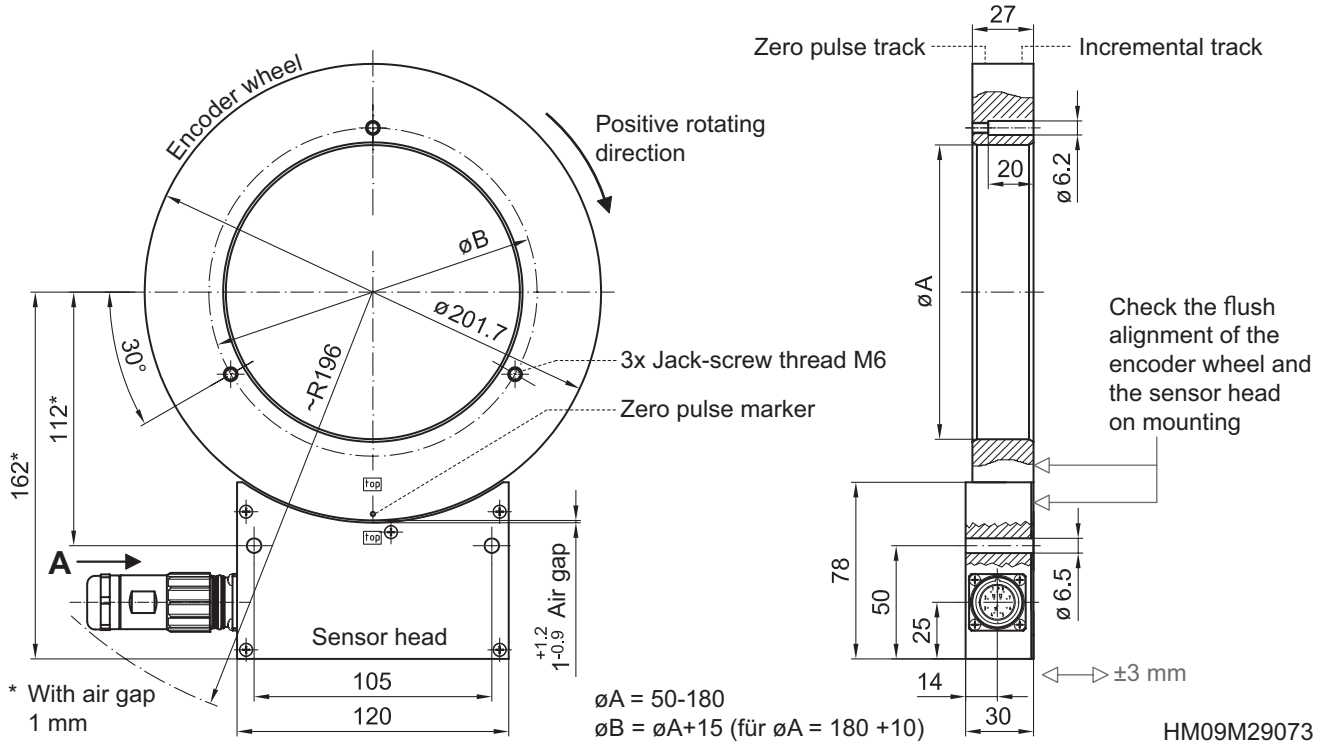
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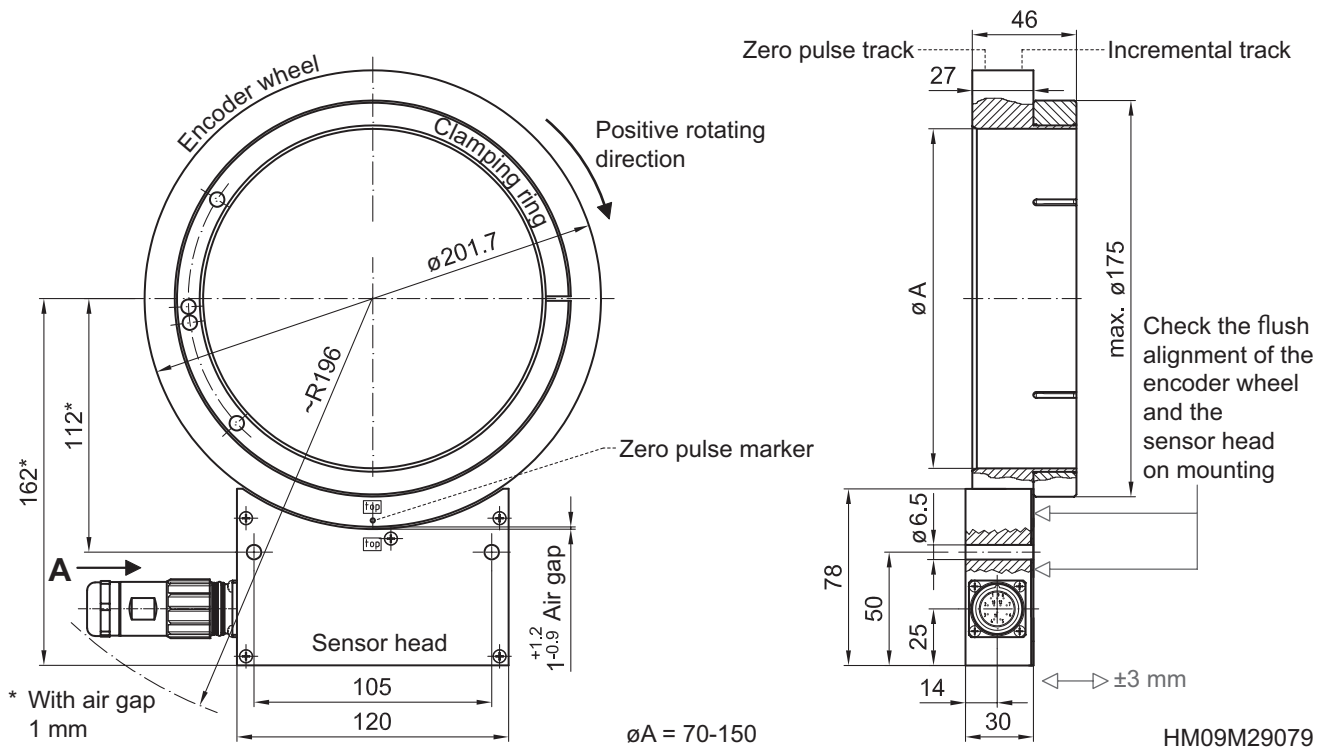
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Dimensions

Version for shrink fit mounting



Version for clamping ring mounting



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