

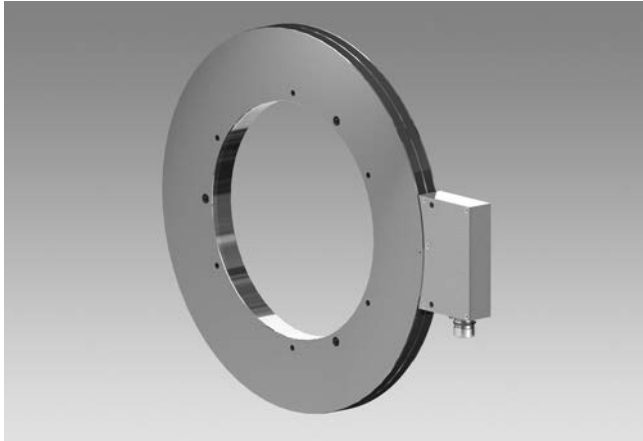
Encoders without bearings - incremental

Sensor head with integrated FPGA signal processing, magnetic sensing

256...524288 pulses or 256...32768 sinewave cycles per turn

Through hollow shaft max. \varnothing 340 mm

MHGP 400 - HDmag



MHGP 400 - Version for axial screw mounting

Features

- Sinewave or square-wave signals
- Robust and wearless
- Electronics is fully encapsulated, high protection
- Large tolerances: axial ± 3 mm, radial max. 2.2 mm
- Very compact dimensions
- Simple mounting, easy adaptation
- Several mounting possibilities
- Sensor head with integrated FPGA signal processing

Optional

- Triple-bandage (increased operating speed)

Technical data - electrical ratings

Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE

Technical data - electrical ratings (square-wave)

Voltage supply	4.5...30 VDC
Consumption w/o load	≤ 160 mA
Pulses per revolution	256...524288
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 stages	HTL TTL/RS422

Technical data - electrical ratings (SinCos)

Voltage supply	4.5...30 VDC
Consumption w/o load	≤ 160 mA
Sinewave cycles per turn	256...32768
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 stages	SinCos 1 Vpp
Difference of SinCos amplitude	≤ 20 mV
Harmonics typ.	-40 dB
DC offset	≤ 20 mV
Bandwidth	400 kHz (-3 dB)

Technical data - mechanical design

Sensor head	FPGA signal processing
Size (flange)	$\varnothing 405.4$ mm
Shaft type	$\varnothing 70...340$ mm (through hollow shaft)
Axial tolerance	± 3 mm (wheel/head)
Radial tolerance	0.1...2.2 mm (wheel/head)
Protection DIN EN 60529	IP 67 (head), IP 68 (wheel)
Operating temperature	$-20...+85$ °C
Operating speed	≤ 2000 rpm
Resistance	IEC 60068-2-6 Vibration 30 g, 55-2000 Hz IEC 60068-2-27 Shock 300 g, 2 ms
Accuracy of magnetic measure	± 75 "
Connection	Flange connector M23, 12-pin

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Part number

MHGP 400 5 N C

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Pulse number/sinewave cycles - see table

|
Voltage supply / signals

- P 4.5...30 VDC / SinCos
- 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 or shrink fit mounting

G140, G160, G170, G180, G190, G210, G230, G250, G300, G310, G340

Clamping set mounting

Z70, Z75, Z80, Z85, Z90, Z95, Z100, Z110, Z120, Z130, Z140, Z150, Z160, Z170, Z200

Bandaging

- B Encoder wheel standard bandage
- T Encoder wheel with triple-bandage

Pulse number/sinewave cycles

256	2048	16384	131072
512	4096	32768	262144
1024	8192	65536	524288

Maximum sinewave cycles 32768 for SinCos output.

Accessories

Connectors and cables

HEK 8 Sensor cable for encoders

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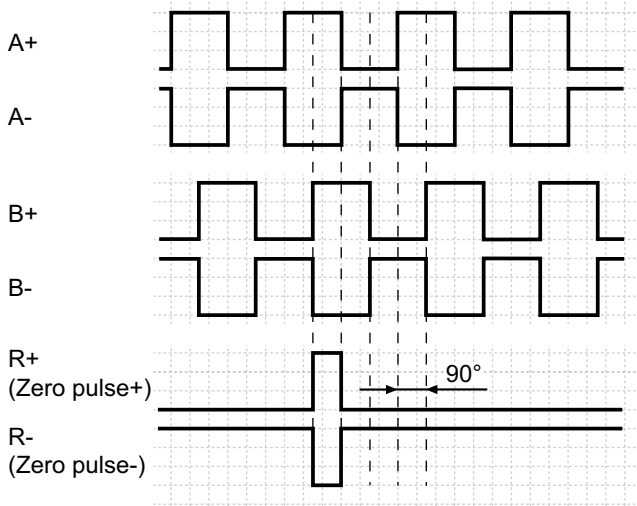
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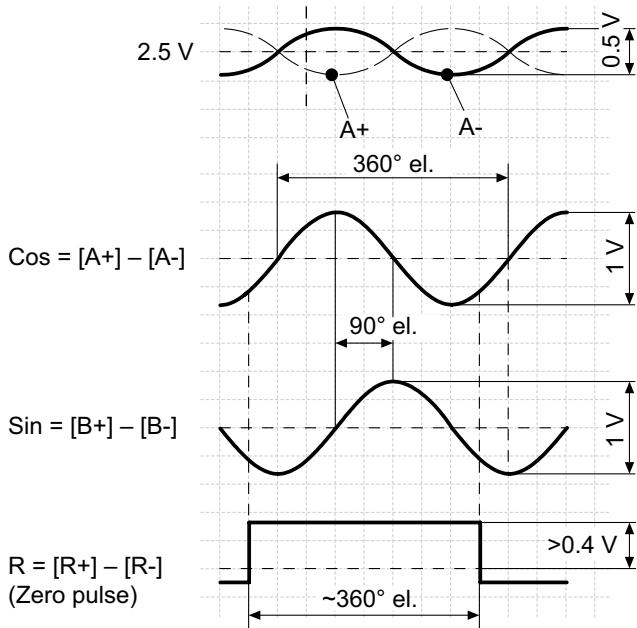
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Output signals

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



Version with SinCos signals at positive rotating direction

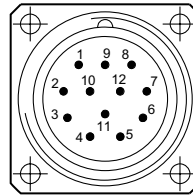


Terminal assignment

View A

Flange connector M23, 12-pin, male contacts, CCW

Pin	Assignment
1	B-
2	Do not use
3	R+ (Zero pulse)
4	R- (Zero pulse inv.)
5	A+
6	A-
7	Do not use
8	B+
9	Do not use
10	⊥
11	Do not use
12	+UB



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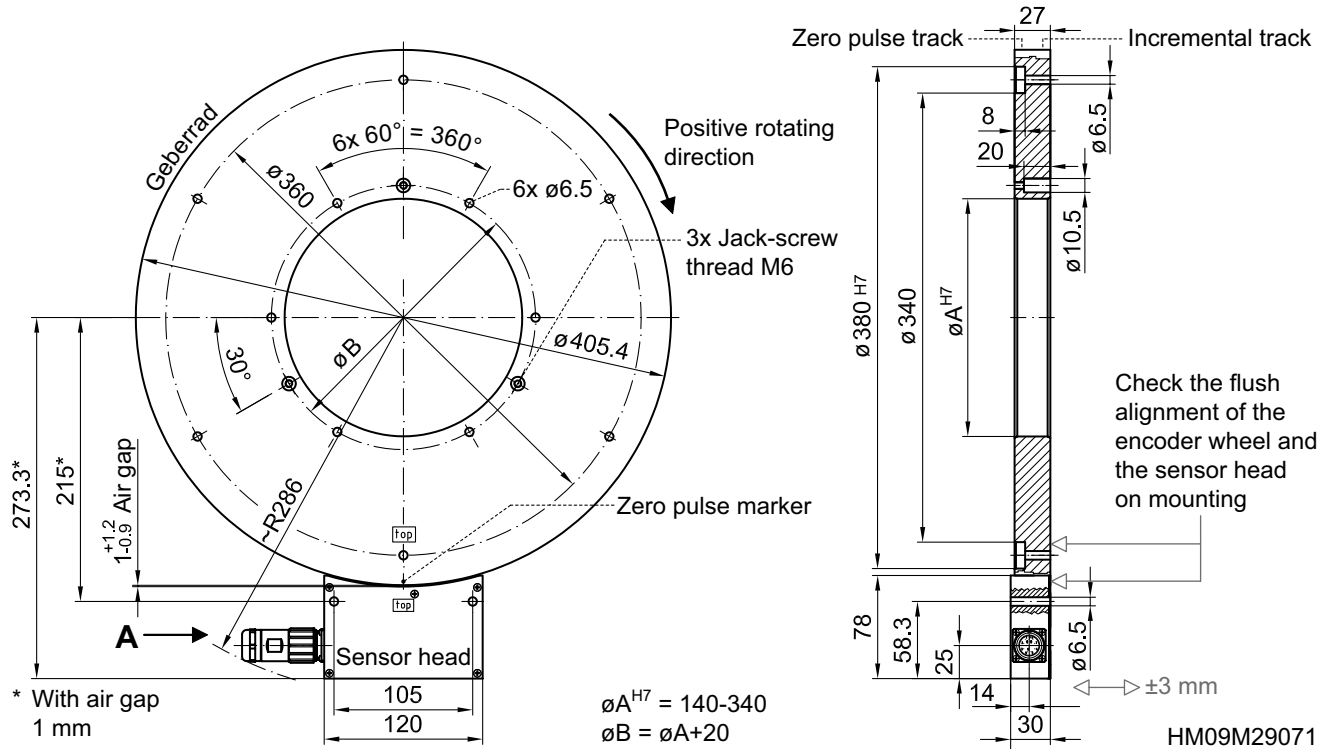
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Dimensions

Version for axial screw mounting or shrink fit mounting



Version for clamping set mounting

