MHGP 400

Sensor head with integrated FPGA signal processing / Magnetic sensing
256…524288 pulses or 256...32768 sinewave cycles per turn / Through hollow shaft max. ø340 mm

Overview

- 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
- Magnetic rotor included in delivery

Technical data

Technical data - electrical ratings	
Voltage supply	4.5...30 VDC
Consumption w/o load	≤160 mA
Sensing method	Magnetic
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823
Technical data - electrical ratings (square-wave)	
Pulses per revolution	256 … 524288
Phase shift	90 ° ±10°
Duty cycle	40…60 %
Reference signal	Zero pulse, width 90°
Output frequency	≤2 MHz
Output signals	A+, B+, R+, A-, B-, R-
Output stages	HTL TTL/RS422
Technical data - electrical ratings (SinCos)	
Sinewave cycles per revolution	256 … 32768
Phase shift	90 ° ±5°
Reference signal	Zero pulse, width 90°
Output signals	A+, B+, R+, A-, B-, R-
Output stages	SinCos 1 Vpp

Technical data - electrical ratings (SinCos)	
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)	ø405.4 mm
Shaft type	ø70...340 mm (through hollow shaft)
Axial tolerance	±3 mm (wheel/head)
Radial tolerance	0.1…2.2 mm (wheel/head)
Protection EN 60529	IP 67
Operating speed	≤2000 rpm
Material	Housing sensing head: aluminium alloy Wheel: stainless steel (1.4104)
Operating temperature	-20...+85 °C
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

Optional

- Triple-bandage (increased operating speed)

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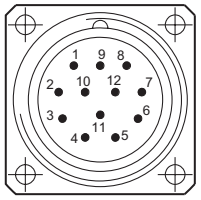
Terminal assignment

View A *(see dimension)*
Assignment flange connector



Flange connector M23,
male, 12-pin,
counter-clockwise (CCW)

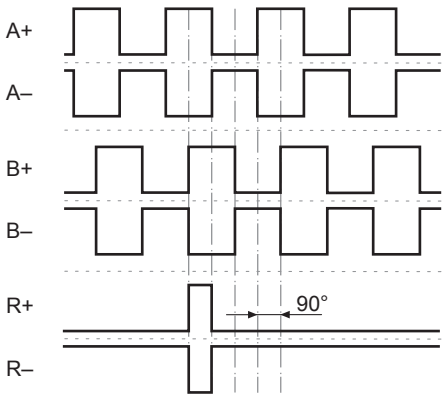
Pin	Assignment
1	B-
2	dnu
3	R+
4	R-
5	A+
6	A-
7	dnu
8	B+
9	dnu
10	0V (⊥)
11	dnu
12	+UB

Terminal significance

+UB	Voltage supply
0V (⊥)	Ground
A+	Output signal channel 1
A−	Output signal channel 1 inverted
B+	Output signal channel 2 (offset by 90° to channel 1)
B−	Output signal channel 2 inverted
R+	Zero pulse (reference signal)
R−	Zero pulse inverted
dnu	Do not use

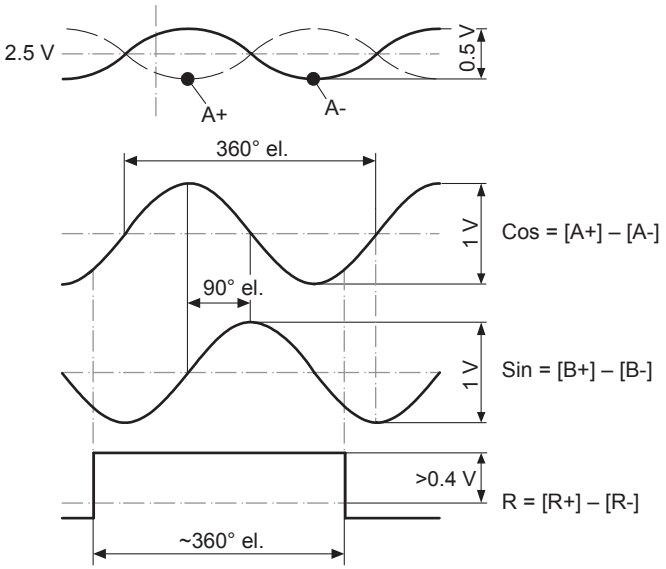
Output signals

HTL/TTL
At positive rotating direction *(see dimension)*



Output signals

SinCos
At positive rotating direction *(see dimension)*



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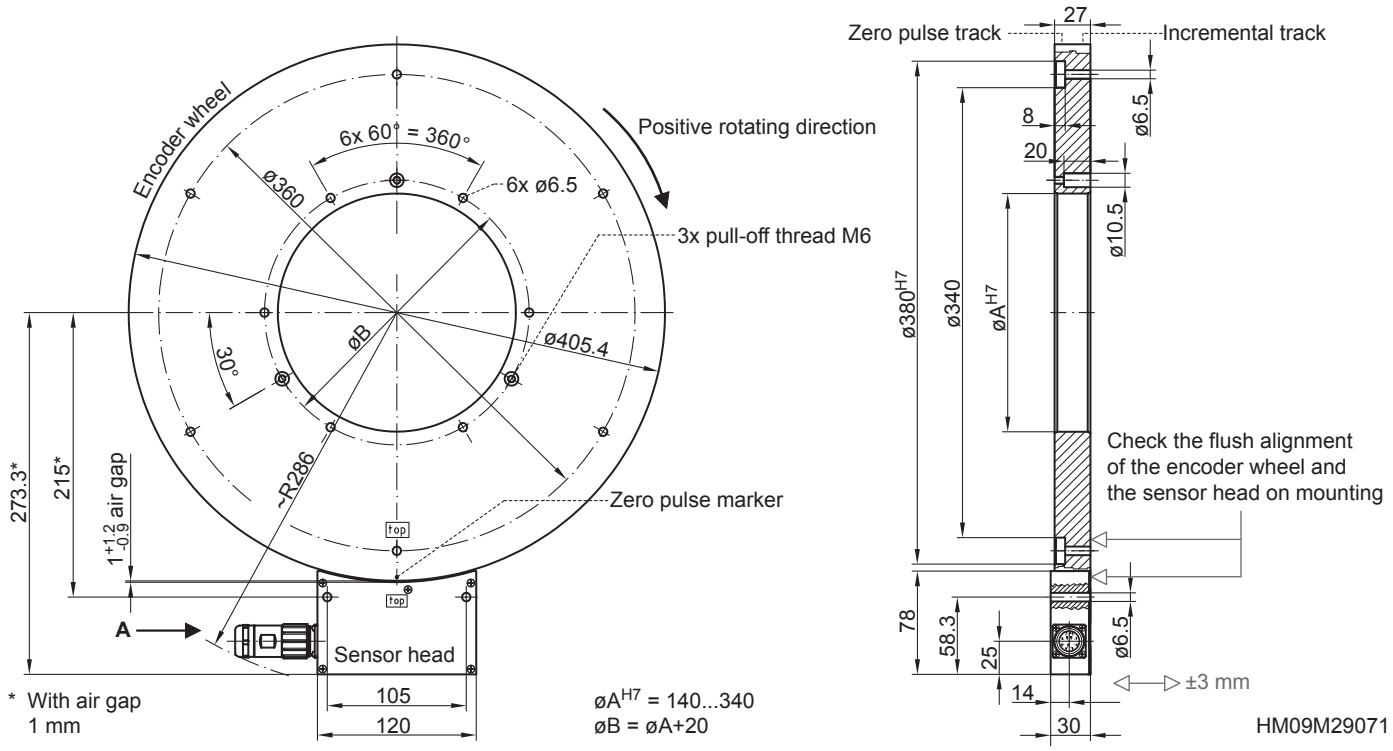
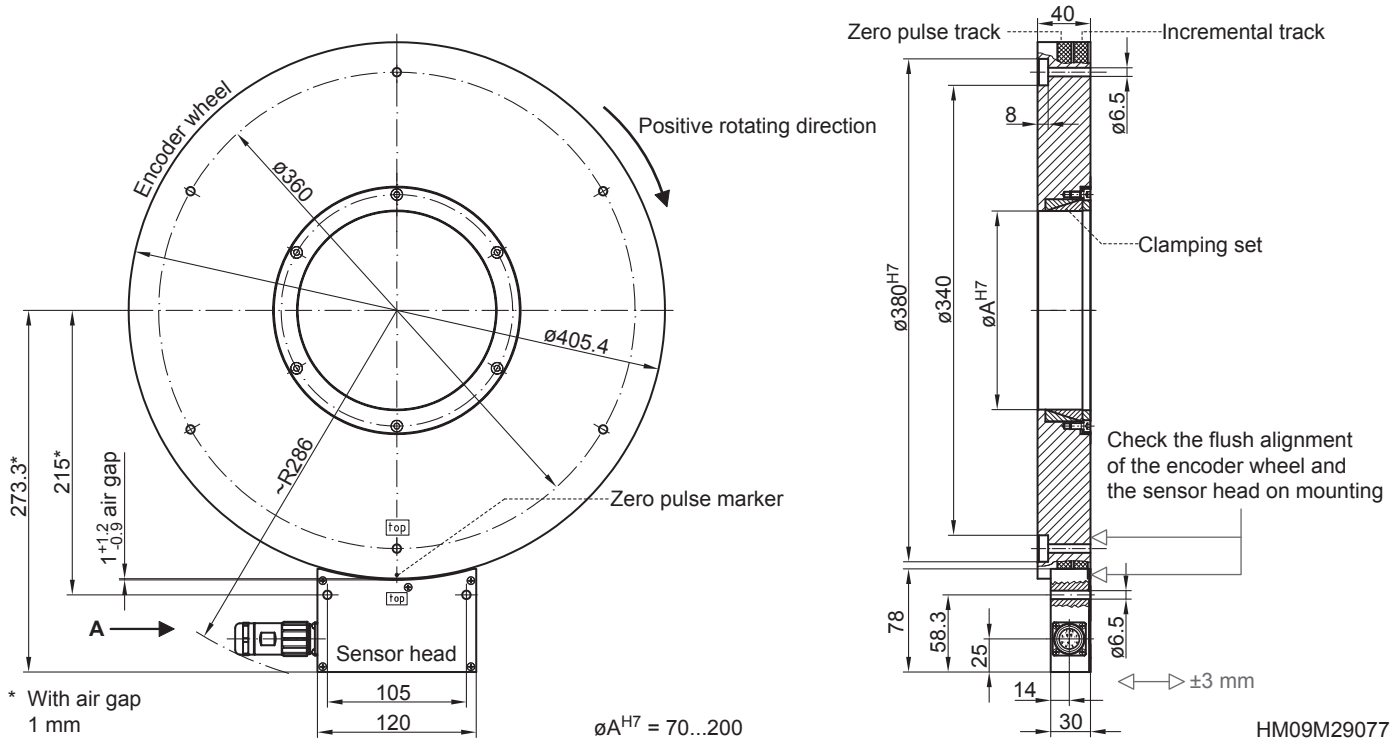
Dimensions



Version for axial screw mounting or shrink fit mounting



Version for clamping set mounting

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Ordering reference

	MHGP400	#	5	####	#	N	######	C
Product								
Encoder without bearings - incremental	MHGP400							
Bandaging								
Encoder wheel standard bandage		B						
Encoder wheel with triple-bandage (optional)		T						
Pole width								
1 pole = 5 mm			5					
Mounting type / hollow shaft (ø mm)(2)								
Screw or shrink fit mounting / ø140 mm				G140				
Screw or shrink fit mounting / ø340 mm				G340				
Clamping set mounting / ø70 mm				Z70				
Clamping set mounting / ø170 mm				Z170				
Clamping set mounting / ø200 mm				Z200				
Voltage supply / output stage(2)								
4.5...30 VDC / SinCos					P			
4.5...30 VDC / TTL					R			
5...30 VDC / 5 VDC = TTL, 10...30 VDC = HTL universal					U			
Zero pulse								
With zero pulse						N		
Pulse number/sinewave cycles(2)								
256							256	
1024							1024	
2048							2048	
4096							4096	
8192							8192	
16384							16384	
32768							32768	
65536(1)							65536	
524288(1)							524288	
Connection								
1x flange connector M23, tangential 12-pin, male, CCW								C

(1) No SinCos output possible
(2) Other versions on request