

MHGP 200

Sensor head with integrated FPGA signal processing / Magnetic sensing

 128...262144 pulses or 128...16384 sinewave cycles per turn / Through hollow shaft max. \varnothing 180 mm

Overview

- Robust and wearless
- Electronics is fully encapsulated, high protection
- Large tolerances: axial \pm 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	\leq 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	128 ... 262144
Phase shift	$90^\circ \pm 10^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width 90°
Output frequency	\leq 2 MHz
Output signals	A+, B+, R+, A-, B-, R-
Output stages	HTL TTL/RS422

Technical data - electrical ratings (SinCos)

Sinewave cycles per revolution	128 ... 16384
Phase shift	$90^\circ \pm 5^\circ$
Reference signal	Zero pulse, width 90°
Output signals	A+, B+, R+, A-, B-, R-
Output stages	SinCos 1 Vpp

Optional

- Triple-bandage (increased operating speed)

Technical data - electrical ratings (SinCos)

Difference of SinCos amplitude	\leq 20 mV
Harmonics typ.	-40 dB
DC offset	\leq 20 mV
Bandwidth	400 kHz (-3 dB)

Technical data - mechanical design

Sensor head	FPGA signal processing
Size (flange)	\varnothing 201.7 mm
Shaft type	\varnothing 50...180 mm (through hollow shaft)
Axial tolerance	\pm 3 mm (wheel/head)
Radial tolerance	0.1...2.2 mm (wheel/head)
Protection EN 60529	IP 67
Operating speed	\leq 4000 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	\pm 150 "
Connection	Flange connector M23, 12-pin

MHGP 200

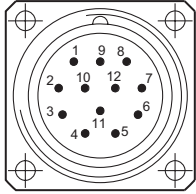
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Terminal assignment

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 (\perp)
11	dnu
12	+UB

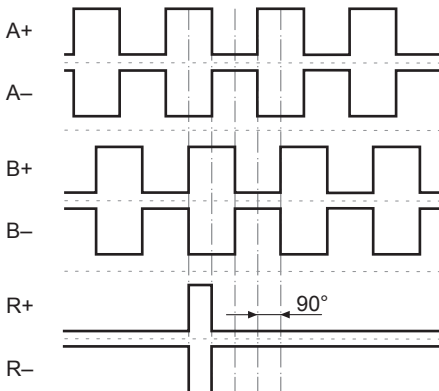
Terminal significance

+UB	Voltage supply
0V (\perp)	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

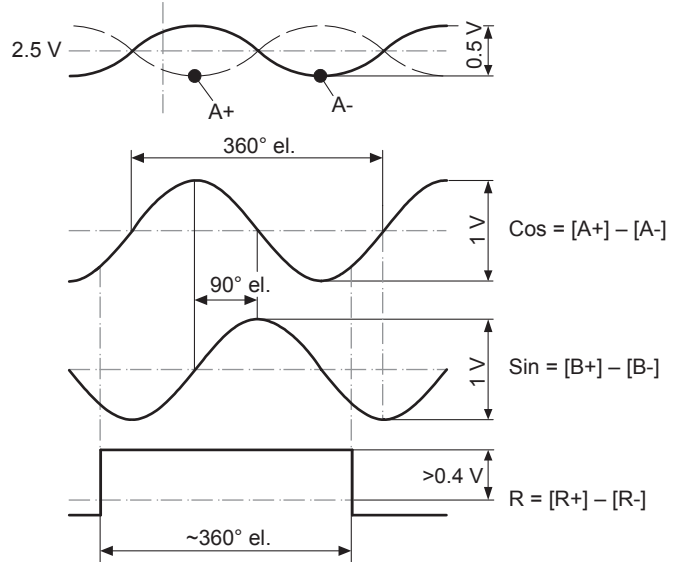
At positive rotating direction (see dimension)



Output signals

SinCos

At positive rotating direction (see dimension)

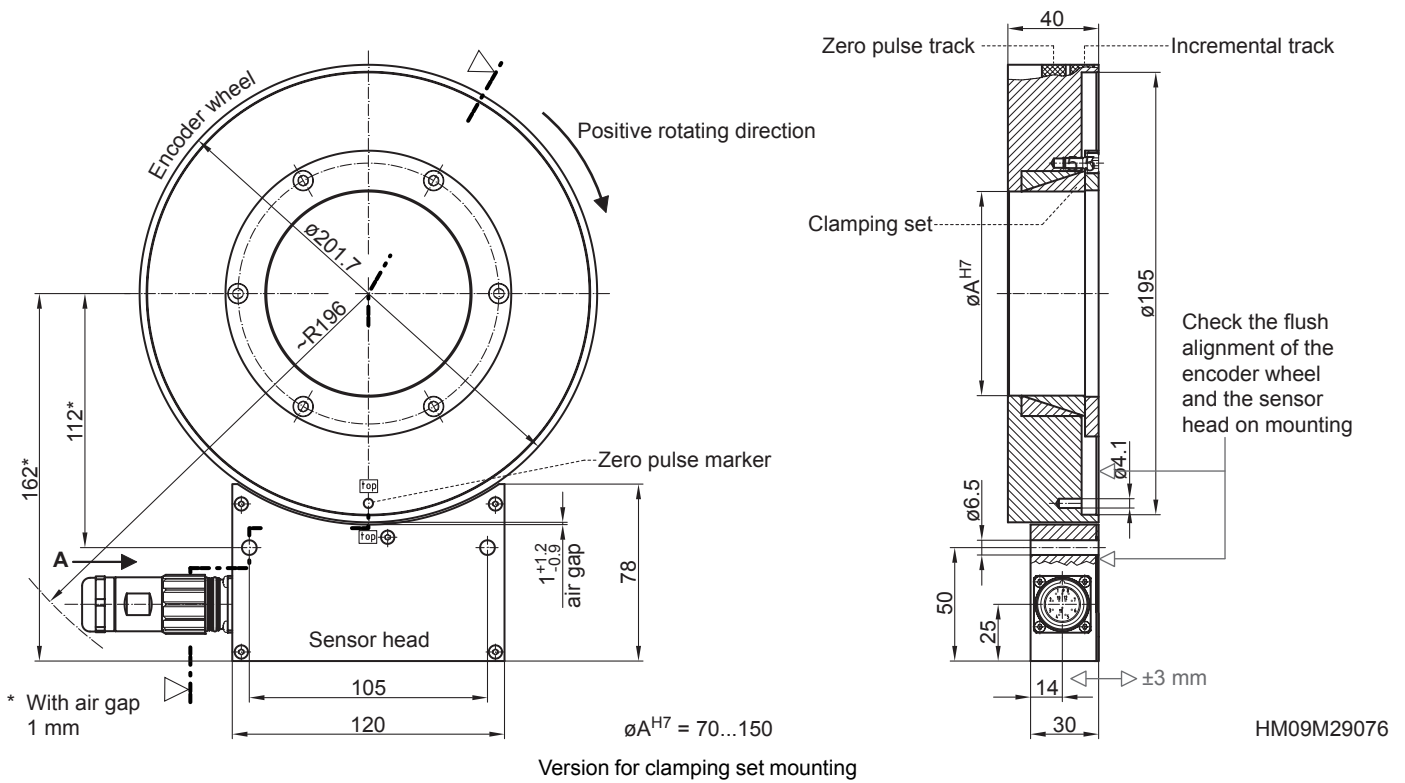
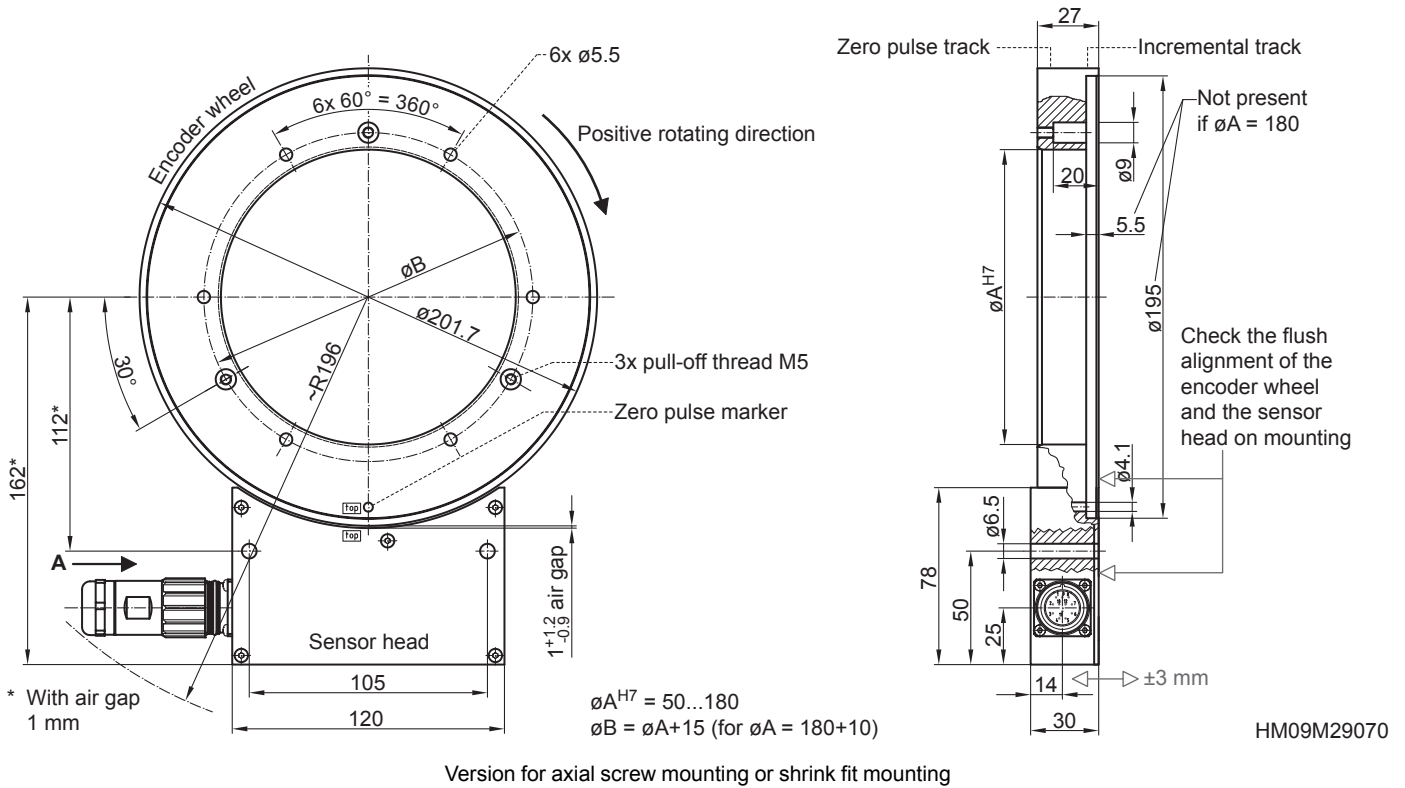


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Dimensions



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Ordering reference

	MHGP200	#	5	####	#	N	#####	C
Product	Encoder without bearings - incremental	MHGP200						
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 / ø50 mm			G50				
	Screw or shrink fit mounting / ø95 mm			G95				
	Screw or shrink fit mounting / ø150 mm			G150				
	Screw or shrink fit mounting / ø180 mm			G180				
	Clamping set mounting / ø70 mm			Z70				
	Clamping set mounting / ø110 mm			Z110				
	Clamping set mounting / ø120 mm			Z120				
	Clamping set mounting / ø130 mm			Z130				
	Clamping set mounting / ø150 mm			Z150				
	Clamping ring mounting / ø70 mm			K70				
	Clamping ring mounting / ø120 mm			K120				
	Clamping ring mounting / ø160 mm			K160				
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⁾								
	128							128
	1024							1024
	2048							2048
	4096							4096
	8192							8192
	16384							16384
	32768 ⁽¹⁾							32768
	262144 ⁽¹⁾							262144
Connection	1x flange connector M23, tangential 12-pin, male, CCW							C

(1) No SinCos output possible

(2) Other versions on request