

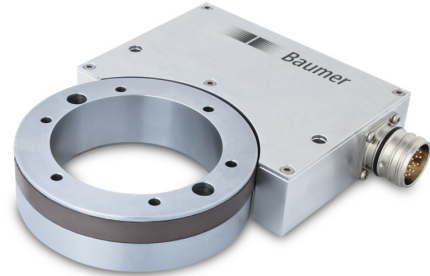
MHGP 100

Sensor head with integrated FPGA signal processing / Magnetic sensing

64...131072 pulses or 64...8192 sinewave cycles per turn / Through hollow shaft max. ø80 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	64 ... 131072
Phase shift	$90^\circ \pm 10^\circ$
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	64 ... 8192
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	≤ 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)	$\varnothing 99,9$ mm
Shaft type	$\varnothing 16...80$ 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	≤ 8000 rpm
Material	Housing sensing head: aluminium alloy Wheel: stainless steel (1.4104)
Operating temperature	$-20...+85^\circ\text{C}$
Resistance	IEC 60068-2-6 Vibration 30 g, 55-2000 Hz IEC 60068-2-27 Shock 300 g, 2 ms
Accuracy of magnetic measure	$\pm 300''$
Connection	Flange connector M23, 12-pin

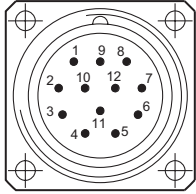
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Terminal assignment

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

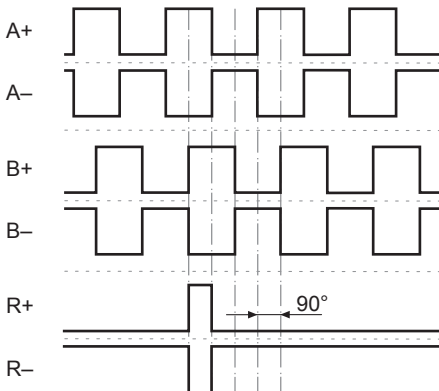
Terminal significance

+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

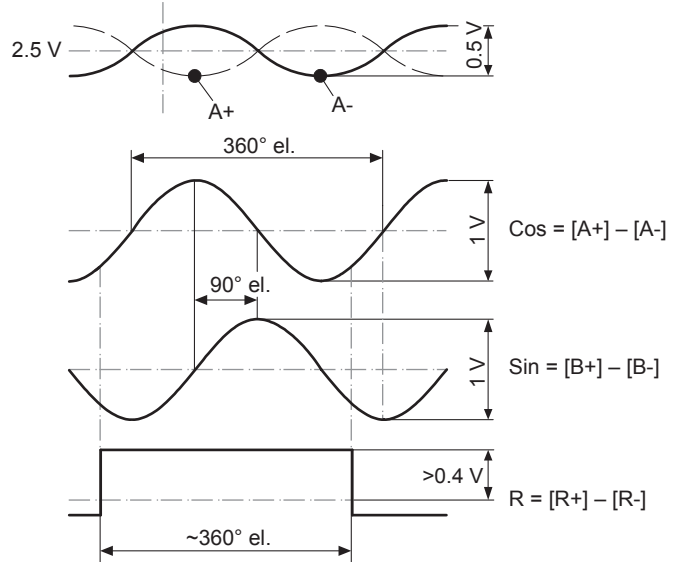
At positive rotating direction (see dimension)



Output signals

SinCos

At positive rotating direction (see dimension)

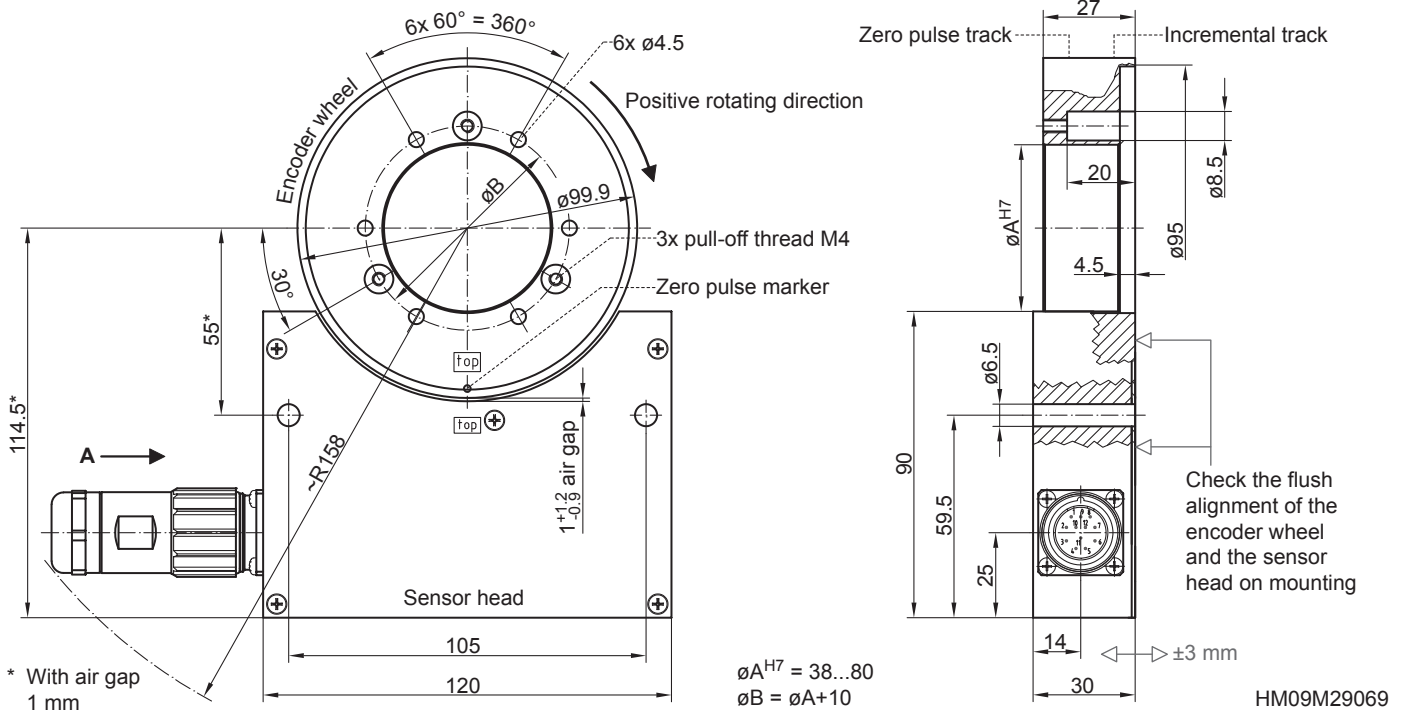


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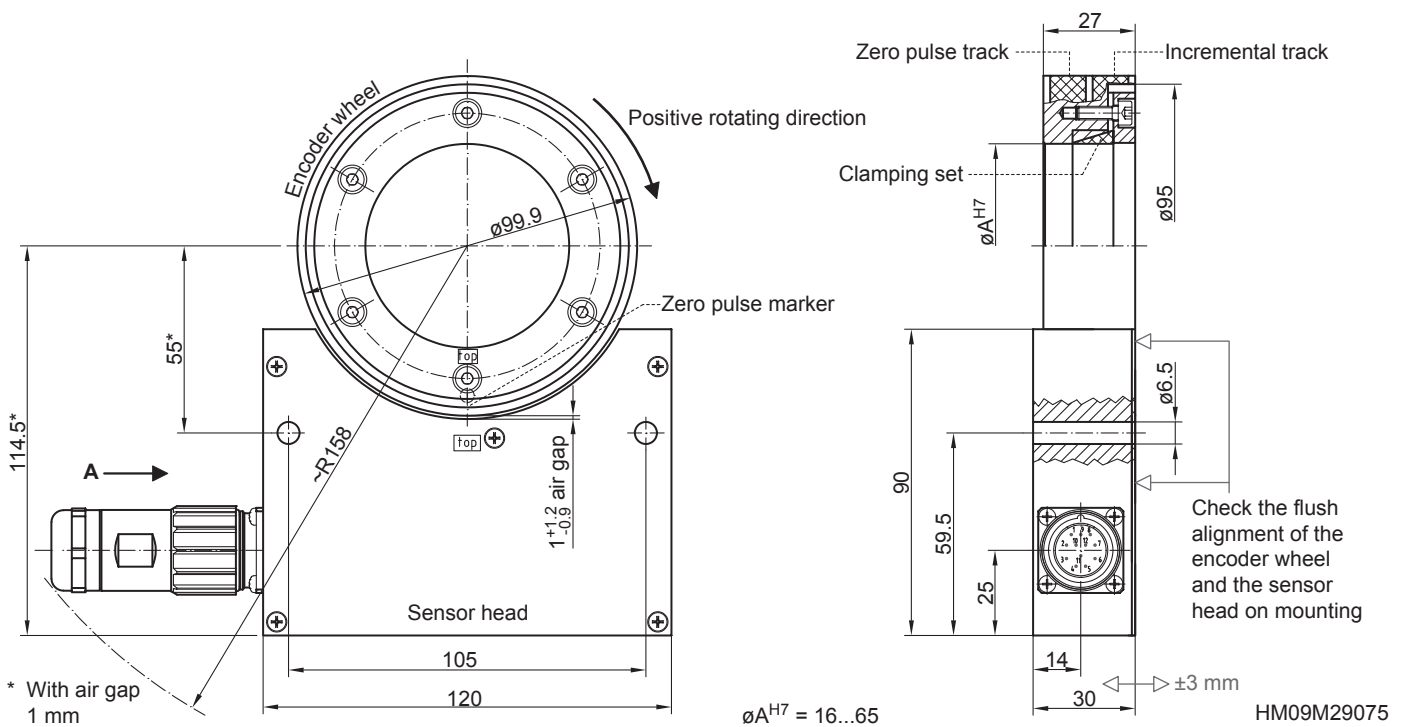
Sensor head with integrated FPGA signal processing / Magnetic sensing

64...131072 pulses or 64...8192 sinewave cycles per turn / Through hollow shaft max. $\varnothing 80$ mm

Dimensions



Version for axial screw mounting or shrink fit mounting



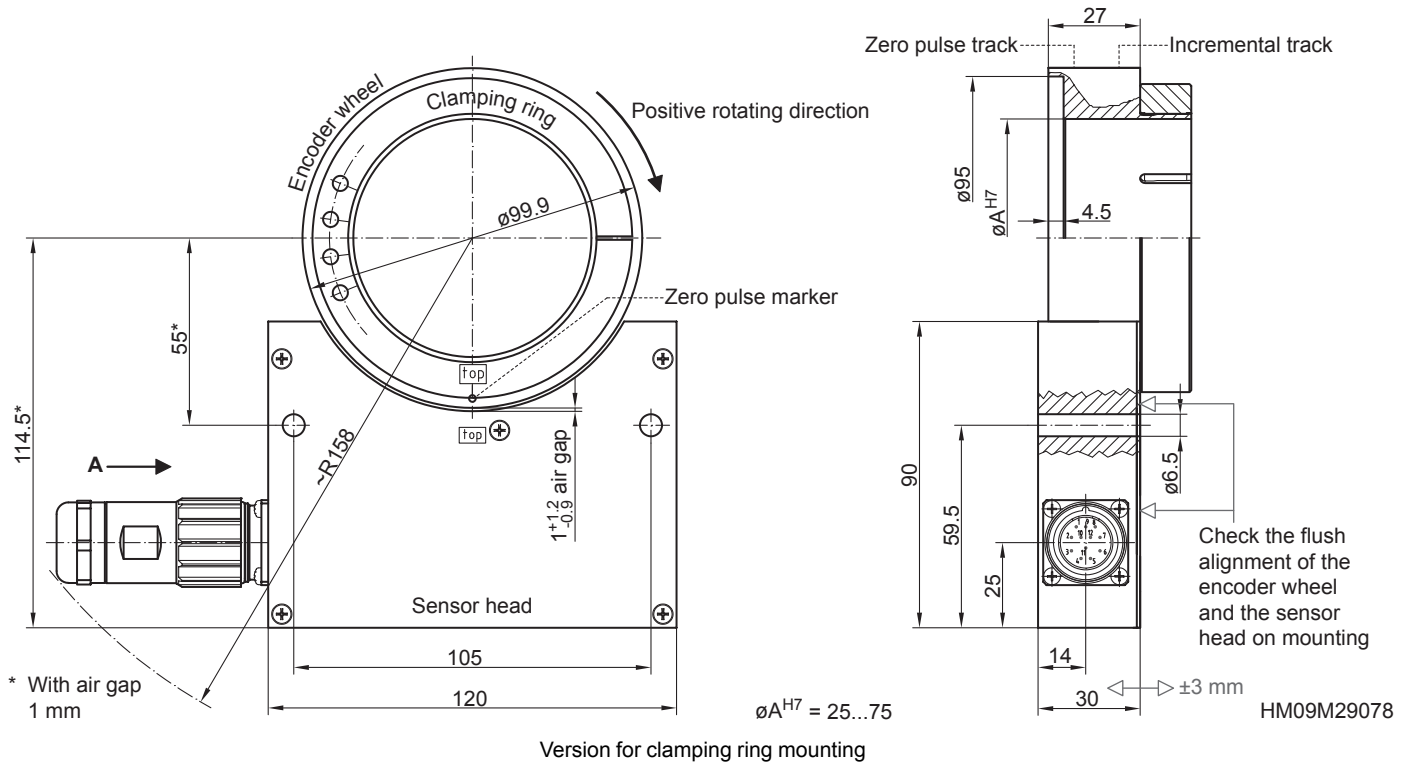
Version for clamping set mounting

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Dimensions



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Ordering reference

	MHGP100	#	5	####	#	N	#####	C
Product	Encoder without bearings - incremental	MHGP100						
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 / ø38 mm			G38				
	Screw or shrink fit mounting / ø60 mm			G60				
	Screw or shrink fit mounting / ø80 mm			G80				
	Clamping set mounting / ø16 mm			Z16				
	Clamping set mounting / ø40 mm			Z40				
	Clamping set mounting / ø65 mm			Z65				
	Clamping ring mounting / ø25 mm			K25				
	Clamping ring mounting / ø50 mm			K50				
	Clamping ring mounting / ø75 mm			K75				
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⁾	64							64
	1024							1024
	2048							2048
	4096							4096
	8192							8192
	16384 ⁽¹⁾							16384
	131072 ⁽¹⁾							131072

Connection

1x flange connector M23, tangential 12-pin, male, CCW

(1) No SinCos output possible

(2) Other versions on request