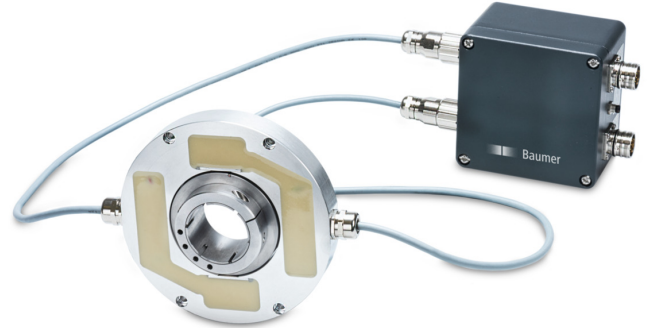


HMC16

Incremental encoder with magnetic sensing and connected signal processing
 Through hollow shaft $\varnothing 25 \dots 60$ mm, resolution 128...65536 pulses

Overview

- Bearingless encoder system of rotor (HMCR16) and stator with sensing unit (HMCK16) with connected signal processing (HMCP16)
- Magnetic sensing
- Robust and free from wear, very high maximum speed up to 25000 rpm
- SinCos, HTL und TTL output, 128...65536 pulses with connected signal processing
- Redundant sensing for concentricity error compensation
- Delivery includes connector plug (not shown)



Technical data

Technical data - electrical ratings

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

Technical data - electrical ratings (signal processing)

Voltage supply	10...30 VDC
Consumption typ.	200 mA (15 VDC)
Output stages	SinCos 1 Vpp HTL TTL TTL/HTL (Vin = Vout), galvanically isolated
Output signals	A+, A-, B+, B- (Option: R+, R-)
Output frequency	≤ 300 kHz (HTL) ≤ 2 MHz (TTL) ≤ 400 kHz (SinCos)
Pulses per revolution	128 ... 65536
Sinewave cycles per revolution	128 ... 4096
Reference signal	Zero pulse (Option)
Sensing method	Magnetic

Technical data - mechanical design

Size (flange)	Encoder: $\varnothing 158$ mm
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Technical data - mechanical design

Dimensions W x H x L	Signal processing: 122 x 122 x 80 mm
Shaft type	Encoder: $\varnothing 25 \dots 60$ mm (through hollow shaft)
Axial tolerance	± 2 mm (encoder)
Radial tolerance	± 0.2 mm (encoder) ± 0.1 mm (> 10000 rpm)
Protection EN 60529	IP 68 (encoder) IP 65 (Signal processing)
Operating speed	≤ 25000 rpm
Material	Housing sensing head: aluminium alloy Wheel: stainless steel (1.4104)
Rotor moment of inertia	7.5 kgcm ² ($\varnothing 45$)
Operating temperature	Encoder: $-20 \dots +85$ °C Signal processing: $0 \dots +50$ °C
Resistance	Encoder: IEC 60068-2-6 Vibration 25 g, 10-2000 Hz IEC 60068-2-27 Shock 300 g, 12 ms Signal processing: IEC 60068-2-6 Vibration 1 g, 50-2000 Hz IEC 60068-2-27 Shock 30 g, 11 ms
Connection	Encoder: Mating connector Signal processing: Flange connector M23, 12-pin / Connector M8, 3-pin, external voltage supply

Optional

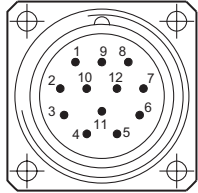
- Speed in the form of a frequency or an SSI word
- Diagnostic function with error output
- Higher pulse numbers on request
- Other shaft diameters on request

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Terminal assignment

View Z (see dimension)
Output I and II HMCP



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	dnu



Flange connector (male, 3-pin),
counter-clockwise (CCW)

Pin	Assignment
1	10...30 VDC
3	0V
4	dnu

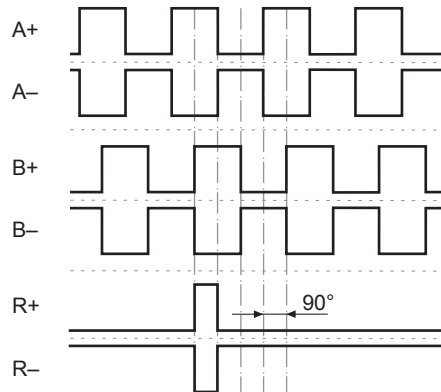
Terminal significance

+UB	Voltage supply
⊥	Ground
⊕	Earth ground (housing)
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

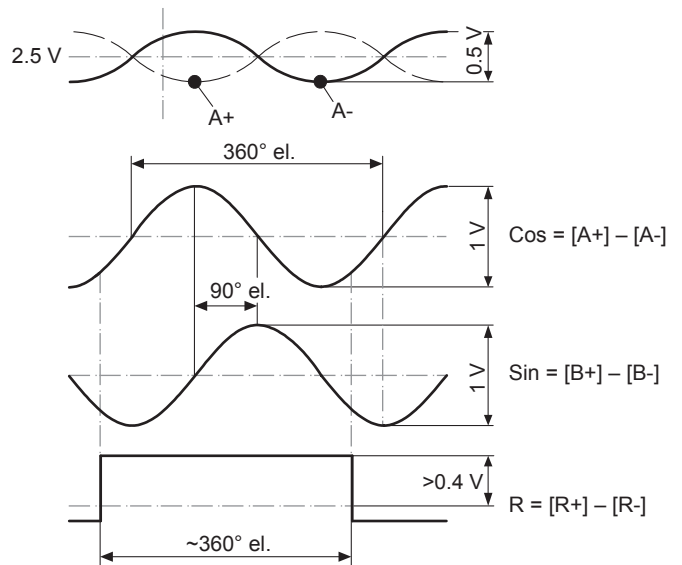
HTL/TTL

At positive rotating direction (see dimension)



SinCos

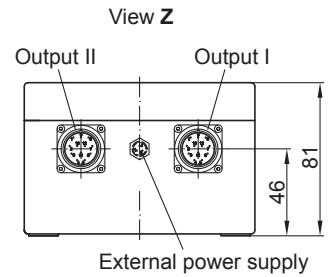
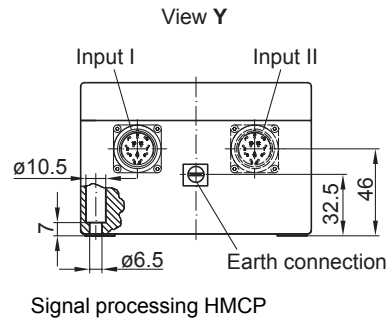
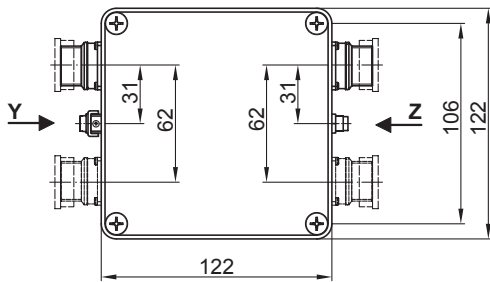
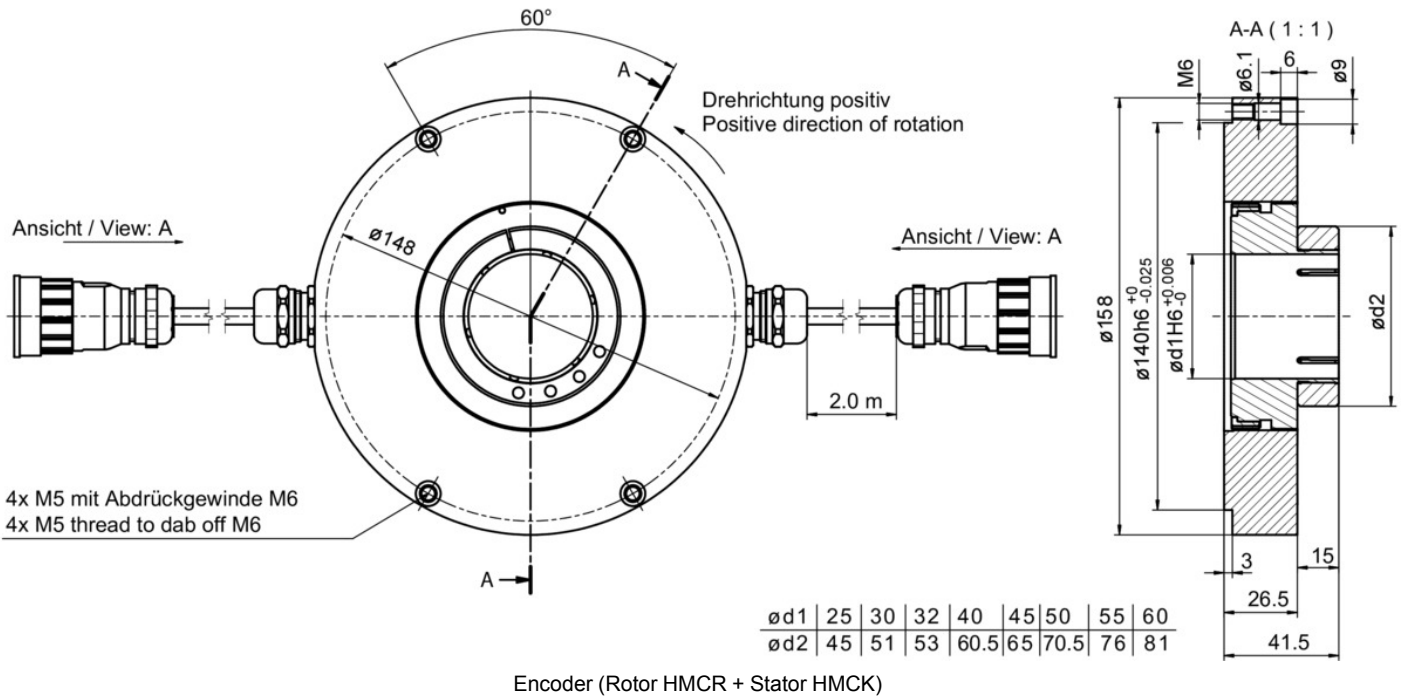
At positive rotating direction (see dimension)



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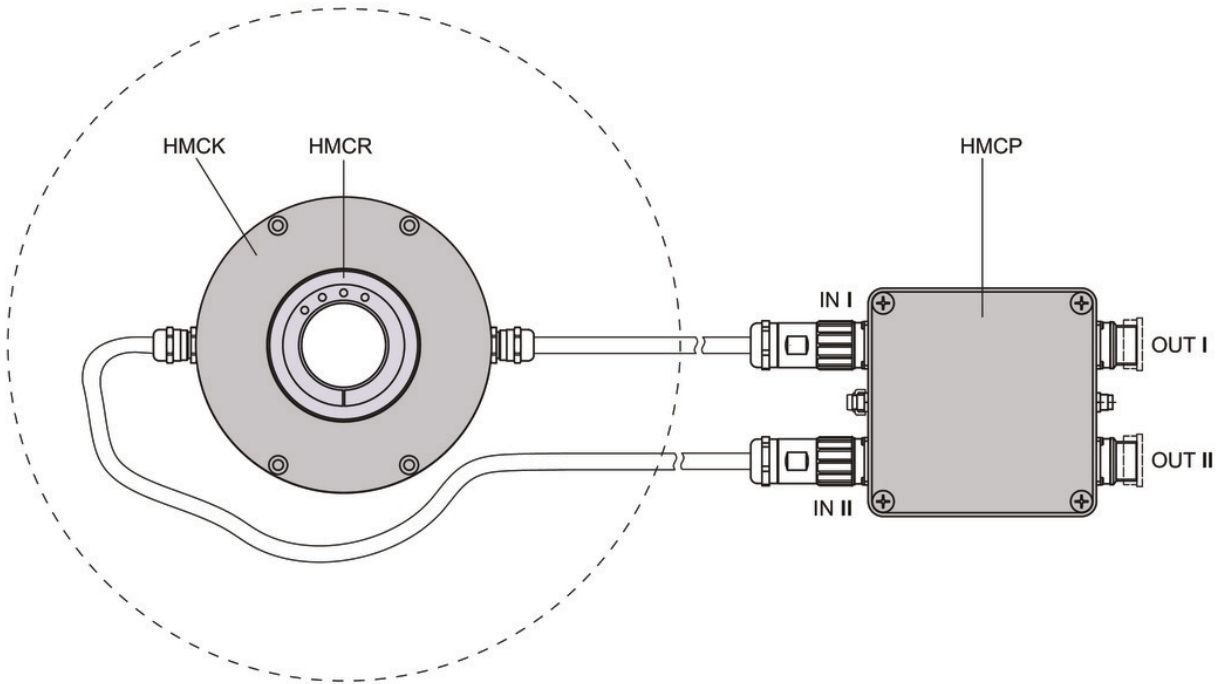
Dimensions



HMC16

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Connection examples



With redundant sensing

HMC16

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 Through hollow shaft ø25...60 mm, resolution 128...65536 pulses

Ordering reference

	HMC16A2	#	##	D	02	#	##	#	##	X00	E	##
Product	HMC16A2											
Zero pulse												
Without zero pulse		X										
With zero pulse		N										
Shaft diameter												
Through hollow shaft ø25 mm			25									
Through hollow shaft ø30 mm			30									
Through hollow shaft ø32 mm			32									
Through hollow shaft ø40 mm			40									
Through hollow shaft ø45 mm			45									
Through hollow shaft ø50 mm			50									
Runout error compensation												
With runout error compensation				D								
Cable length												
Standard 2 m, M23 connector					02							
Output stage I												
SinCos 1 Vpp (max. 4096 periods per revolution)						S						
HTL						H						
TTL						T						
TTL/HTL (Vin=Vout), galvanically isolated, 5...30 VDC						U						
Pulse number/periods per revolution I												
128							00					
256							01					
512							10					
1024							11					
2048							12					
4096							13					
8192							30					
16384							31					
32768							32					
65536							33					
Output stage II												
Output not used										x		
HTL										H		
TTL										T		
TTL/HTL (Vin=Vout), galvanically isolated, 5...30 VDC										U		
Pulse number/periods per revolution II												
128										00		
256										01		
512										10		
1024										11		
2048										12		
4096										13		
8192										30		
16384										31		
32768										32		
65536										33		
Output stage III												
Without output stage III											X00	

HMC16

Incremental encoder with magnetic sensing and connected signal processing

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Ordering reference

HMC16A2 # ## D 02 # ## # ## X00 E ##

Voltage supply

10...30 VDC, external via M8 connector

E

Filter settings

150 runtime in μs

00

300 runtime in μs

01

500 runtime in μs

02

1000 runtime in μs

03

Other shaft diameters, pulse numbers and versions on request.