Baumer
Passion for Sensors

Incremental encoders

HOG 9

Blind hollow shaft or cone shaft
300…5000 pulses per revolution

Overview

- Optical sensing method
- Output stage HTL with power linedriver
- TTL output driver for cable length up to 550 m
- Operating temperature up to +100 °C
- Hybrid bearing for extended service life



HTL TTL® HUBNER BERLIN A Baumer Brand

Technical data

Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC ±5 %
Consumption w/o load	≤100 mA
Pulses per revolution	300 … 5000
Phase shift	90 ° ±20°
Duty cycle	40…60 %
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤120 kHz ≤300 kHz (on request)
Output signals	K1, K2, K0 + inverted
Output stages	HTL-P (power linedriver) TTL/RS422
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823

Technical data - mechanical design

Size (flange)	ø97 mm
Shaft type	ø12...16 mm (blind hollow shaft) ø17 mm (cone shaft 1:10)

Technical data - mechanical design

Admitted shaft load	≤400 N axial ≤500 N radial
Protection DIN EN 60529	IP 56
Operating speed	≤10000 rpm (mechanical)
Operating torque typ.	6 Ncm
Rotor moment of inertia	160 gcm²
Material	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+100 °C -25...+100 °C (>3072 pulses)
Resistance	IEC 60068-2-6 Vibration 17 g, 10...2000 Hz IEC 60068-2-27 Shock 275 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
Explosion protection	II 3 G Ex nA IIC T4 Gc (gas) II 3 D Ex tc IIIB T135°C Dc (dust)
Connection	Flange connector M23, 12-pin
Weight approx.	700 g

Optional

- Function control with EMS (Enhanced Monitoring System)

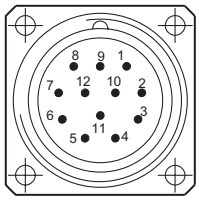
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Terminal assignment

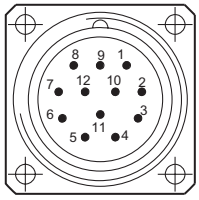
View A *(see dimension)*
Assignment flange connector



Flange connector M23,
male, 12-pin,
clockwise (CW)

Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	dnu
8	K2
9	dnu
10	0V (⊥)
11	dnu
12	+UB

Option EMS: View A *(see dimension)*
Assignment flange connector



Flange connector M23,
male, 12-pin,
clockwise (CW)

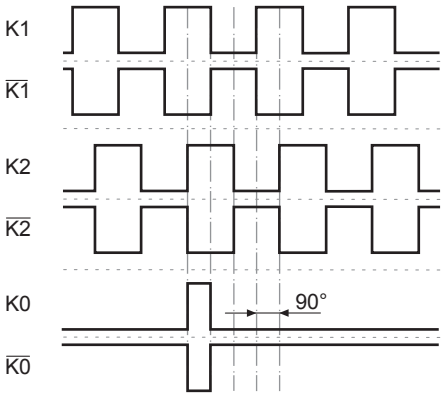
Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	$\overline{Err}$
8	K2
9	0V (⊥) @ $\overline{Err}$
10	0V (⊥)
11	dnu
12	+UB

Terminal significance

+UB	Voltage supply
0V (⊥)	Ground
K1	Output signal channel 1
$\overline{K1}$	Output signal channel 1 inverted
K2	Output signal channel 2 (offset by 90° to channel 1)
$\overline{K2}$	Output signal channel 2 inverted
K0	Zero pulse (reference signal)
$\overline{K0}$	Zero pulse inverted
$\overline{Err}$	Error output (option EMS)
dnu	Do not use

Output signals

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



Option EMS (Enhanced Monitoring System): Status LED / error output

Flash light red*	Error of signal sequenze, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output transistors (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or wrong connection (Error output = LOW)

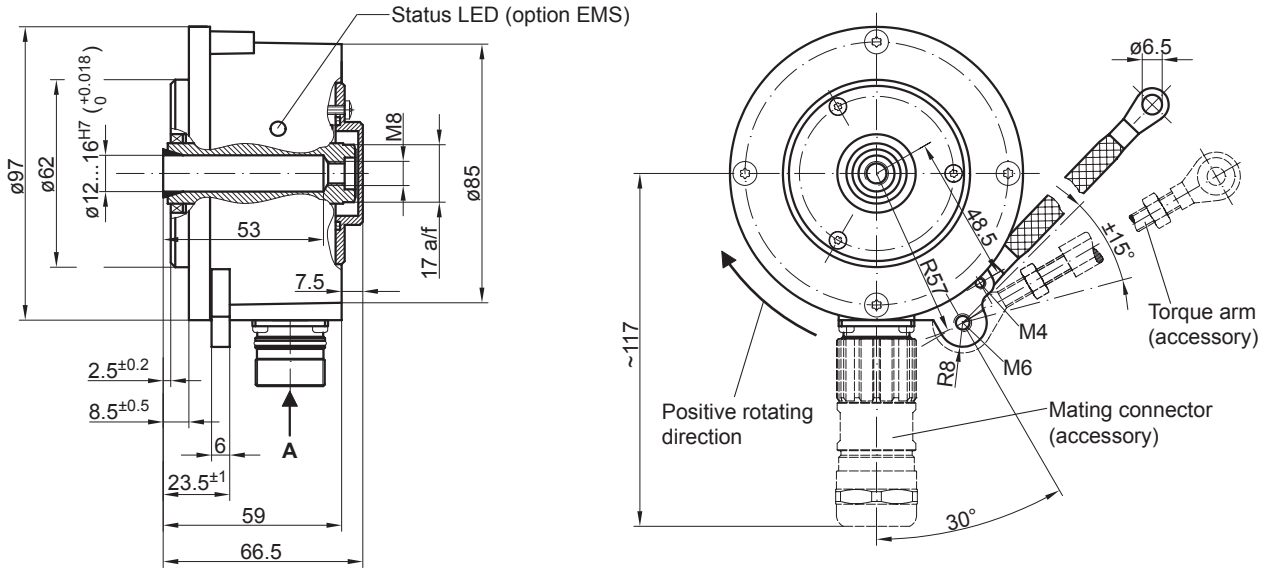
* Only at rotating device

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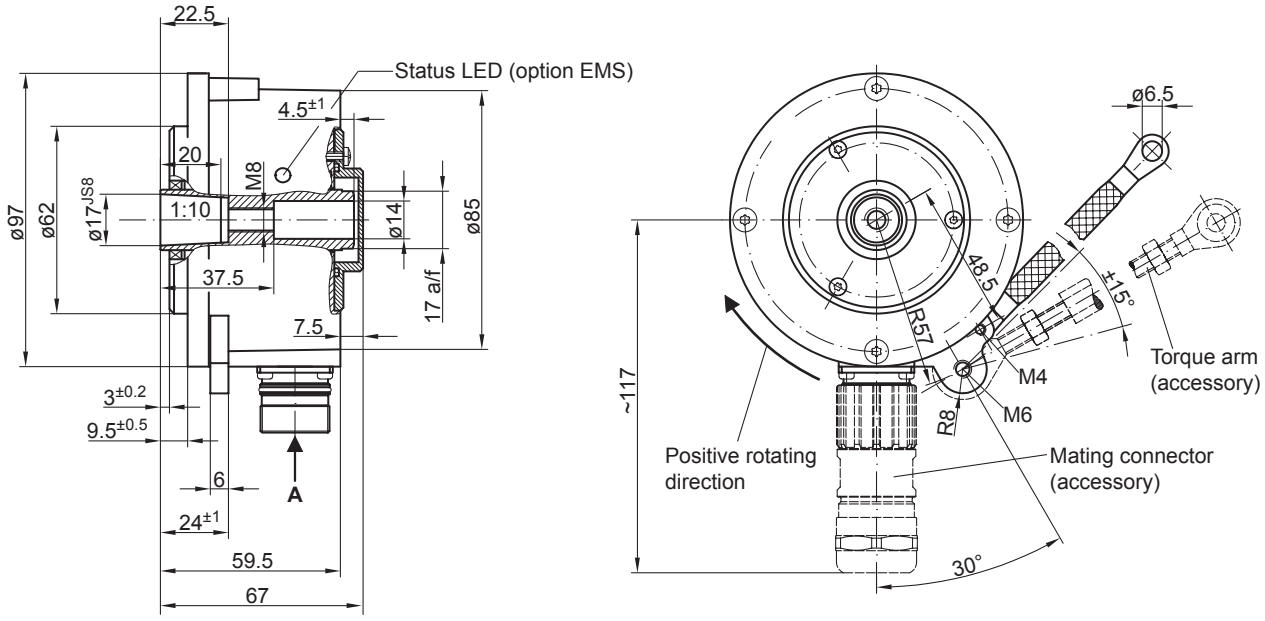
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Dimensions



Blind hollow shaft



Cone shaft

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Ordering reference

	HOG9	##	DN	####	###	######
Product						
Incremental encoder	HOG9					
EMS - Enhanced Monitoring System						
Without EMS						
With EMS		.2				
Output signals						
K1, K2, K0			DN			
Pulse number(1)						
300				300		
500				500		
512				512		
1000				1000		
1024				1024		
1200				1200		
2048				2048		
2500				2500		
3072				3072		
4096				4096		
5000				5000		
Voltage supply / output stage						
9...30 VDC / output stage HTL with inverted signals					I	
5 VDC / output stage TTL with inverted signals					TTL	
9...30 VDC / output stage TTL with inverted signals					R	
Shaft diameter						
Blind hollow shaft ø12 mm						12H7
Through hollow shaft ø14 mm						14H7
Blind hollow shaft ø15 mm						15H7
Blind hollow shaft ø16 mm						16H7
Cone shaft ø17 mm (1:10)						17K

(1) Other pulse numbers on request.

Accessories

Mounting accessories

11043628	Torque arm M6, length 67...70 mm
11004078	Torque arm M6, length 120...130 mm (≥71 mm)
11002915	Torque arm M6, length 425...460 mm (≥131 mm)
11054917	Torque arm M6 insulated, length 67...70 mm
11072795	Torque arm M6 insulated, length 120...130 mm (≥71 mm)
11082677	Torque arm M6 insulated, length 425...460 mm (≥131 mm)
11077197	Mounting kit for torque arm size M6 and earthing strap
11081744	Mounting and dismounting kit for blind hollow shaft
11084868	Mounting and dismounting kit for cone shaft

Connectors and cables

	Sensor cable for encoders HEK 8
11068577	Mating connector M23, solder version, 12-pin, CCW

Accessories

Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
11075880	Analyzer for encoders HENQ 1100 with a power pack

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