

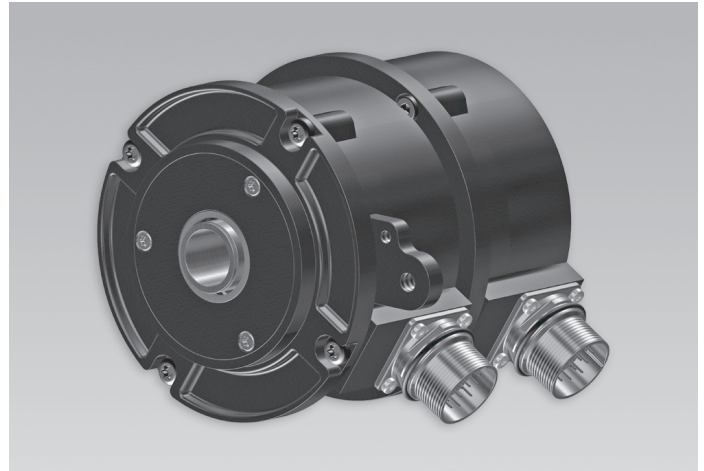
HOG 9 G

Twin encoder with two electrically separated systems

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

Overview

- Twin encoder featuring two separate systems
- TTL output driver for cable length up to 550 m
- Hybrid bearing for extended service life



Technical data

Technical data - electrical ratings

Voltage supply	5 VDC ±5 % 9...30 VDC
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°
Output frequency	≤120 kHz ≤300 kHz (on request)
Output signals	K1, K2, K0 + inverted Error output (option EMS)
Output stages	HTL-P (power linedriver) TTL/RS422
Sensing method	Optical
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	ø16 mm (blind hollow shaft) ø17 mm (cone shaft 1:10)

Optional

- Function control with EMS (Enhanced Monitoring System)

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 gcm ²
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	2x flange connector M23, 12-pin
Weight approx.	1,1 kg

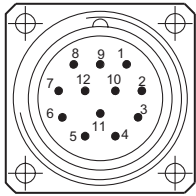
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Terminal assignment

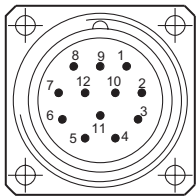
View A (see dimension)
Assignment flange connector



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 (\perp)
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 (\perp) @ \overline{Err}
10	0V (\perp)
11	dnu
12	+UB

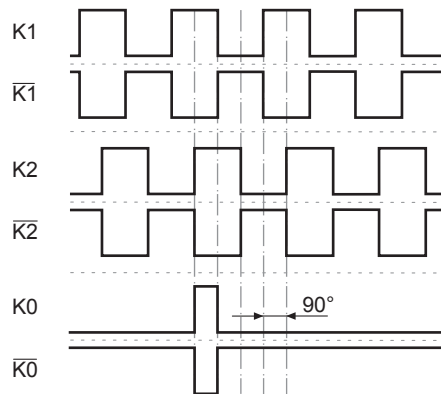
Terminal significance

+UB	Voltage supply
0V (\perp)	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 sequence, 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)

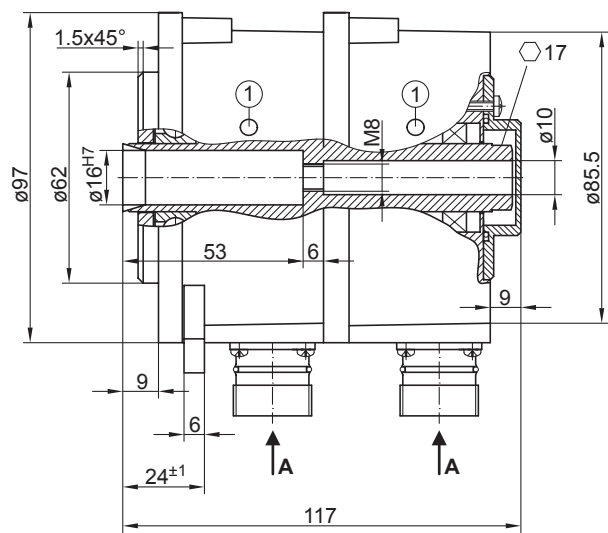
* Only at rotating device

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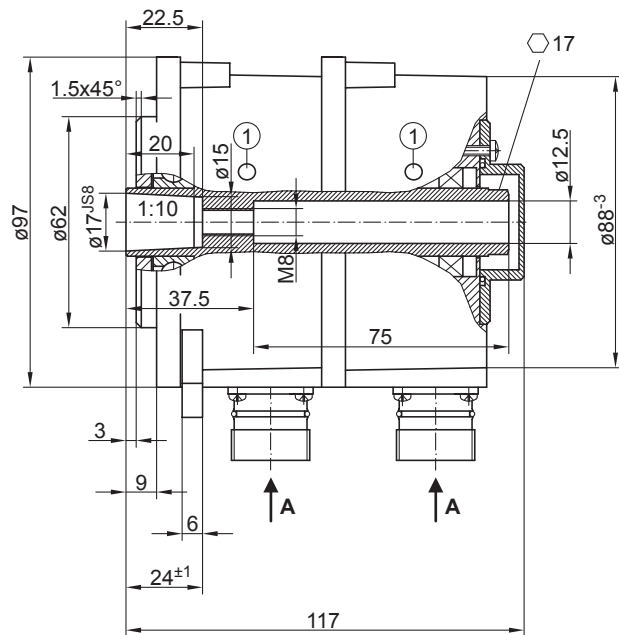
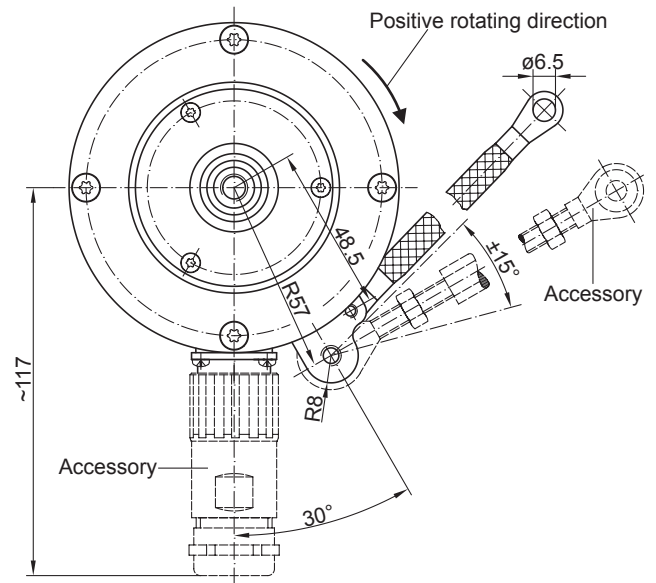
Blind hollow shaft or cone shaft 300...5000 pulses per revolution

Dimensions



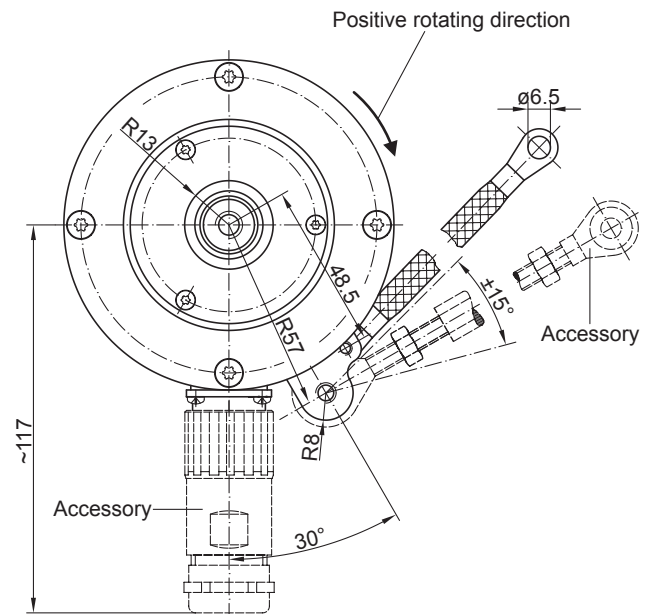
① Status LED (option EMS)

Blind hollow shaft



① Status LED (option EMS)

Cone shaft



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Ordering reference

	HOG9	##	G	DN	####	###	/	DN	####	###	#####
Product											
Incremental encoder	HOG9										
EMS - Enhanced Monitoring System											
Without EMS											
With EMS		.2									
Redundant encoder											
With redundant encoder			G								
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					
Output signals (G)											
K1, K2, K0								DN			
Pulse number (G)⁽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 (G)											
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 \varnothing 16 mm											16H7
Cone shaft \varnothing 17 mm (1:10)											17K

(1) Other pulse numbers on request.

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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 dismantling kit for blind hollow shaft
11084868	Mounting and dismantling kit for cone shaft

Connectors and cables

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

Diagnostic accessories

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