

# Incremental encoders

## Blind hollow shaft or cone shaft

### 300...2500 pulses per revolution

## HOG 9



HOG 9

### Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC $\pm$ 5 %
Consumption w/o load	$\leq$ 100 mA
Pulses per revolution	300...2500
Phase shift	90° $\pm$ 20°
Duty cycle	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	$\leq$ 120 kHz
Output signals	K1, K2, K0 + inverted
Output circuit	HTL (power linedriver) TTL/RS422
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approvals	CE, RoHS, UL approval / E256710

### Features

- Optical sensing
- Logic level HTL with power linedriver
- TTL output driver for cable length up to 500 m
- Temperature max. +100 °C
- Protection against inductive shaft current by hybrid bearing

### Optional

- Function control with EMS (Enhanced Monitoring System)

### Technical data - mechanical design

Dimensions (flange)	$\varnothing$ 97 mm
Shaft type	$\varnothing$ 12...16 mm (blind hollow shaft) $\varnothing$ 17 mm (cone shaft 1:10)
Shaft loading	$\leq$ 200 N axial $\leq$ 300 N radial
Protection DIN EN 60529	IP 56
Operating speed	$\leq$ 10000 rpm (mechanical)
Operating torque typ.	6 Ncm
Rotor moment of inertia	160 gcm <sup>2</sup>
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+100 °C
Resistance	IEC 60068-2-6 Vibration 10 g, 10-2000 Hz IEC 60068-2-27 Shock 100 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist Complies to ISO 12944-5:1998 Protective paint systems (C4)
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

Subject to modification in technic and design. Errors and omissions excepted.

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#### Part number

#### Incremental encoder

HOG9 

	DN			
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					Shaft diameter
					12H7 Blind hollow shaft ø12 mm
					14H7 Blind hollow shaft ø14 mm
					15H7 Blind hollow shaft ø15 mm
					16H7 Blind hollow shaft ø16 mm
					17K Cone shaft ø17 mm (1:10)
Voltage supply / signals					
					I 9...30 VDC / output circuit HTL with inverted signals
					TTL 5 VDC / output circuit TTL with inverted signals
					R 9...30 VDC / output circuit TTL with inverted signals
Pulse number - see table					
Output signals					
					DN K1, K2, K0
EMS - Enhanced Monitoring System					
Without EMS					
.2 With EMS					

#### Pulse number

300	512	1024	2048
500	1000	1200	2500

Other pulse numbers on request.

#### Accessories

##### Connectors and cables

HEK 8	Sensor cable for encoders
11068577	Mating connector M23 counter-clockwise

##### Mounting accessories

DMS 6	Torque arm size M6
11081744	Mounting and dismounting kit for blind hollow shaft
11084868	Mounting and dismounting kit for cone shaft

##### Diagnostic accessories

HENQ 1100	Analyzer for encoders
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# Incremental encoders

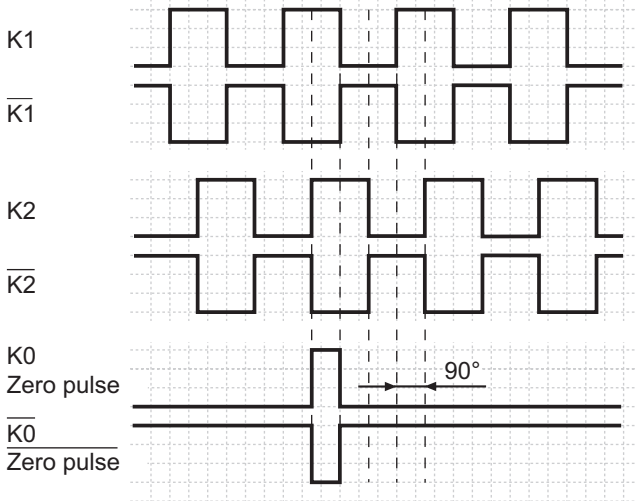
## Blind hollow shaft or cone shaft

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### Output signals

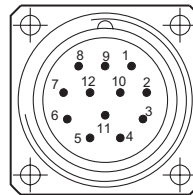
At positive rotating direction



### Terminal assignment

**View A** - Flange connector M23, 12 pin, male contacts, CW

Pin	Assignment
1	$\overline{K2}$ (K2 inv.)
2	Do not use
3	K0 (Zero pulse)
4	$\overline{K0}$ (Zero pulse inv.)
5	K1
6	$\overline{K1}$ (K1 inv.)
7	Do not use (Option EMS: Err)
8	K2
9	Do not use (Option EMS: 0 V)
10	0 V
11	Do not use
12	+UB



### Option EMS: LED status / 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	Encoder o.k., rotating (Error output = HIGH)
Green	Encoder o.k., stopped (Error output = HIGH)
No light	No output voltage connection or wrong connection (Error output = LOW)

\* Only at rotating encoder

# Incremental encoders

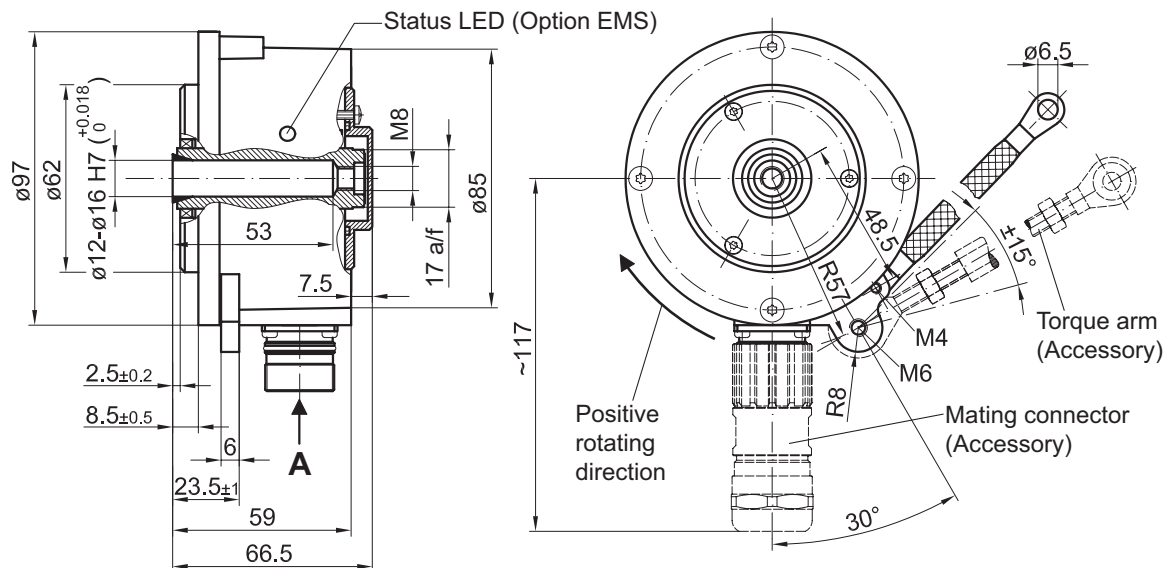
## Blind hollow shaft or cone shaft

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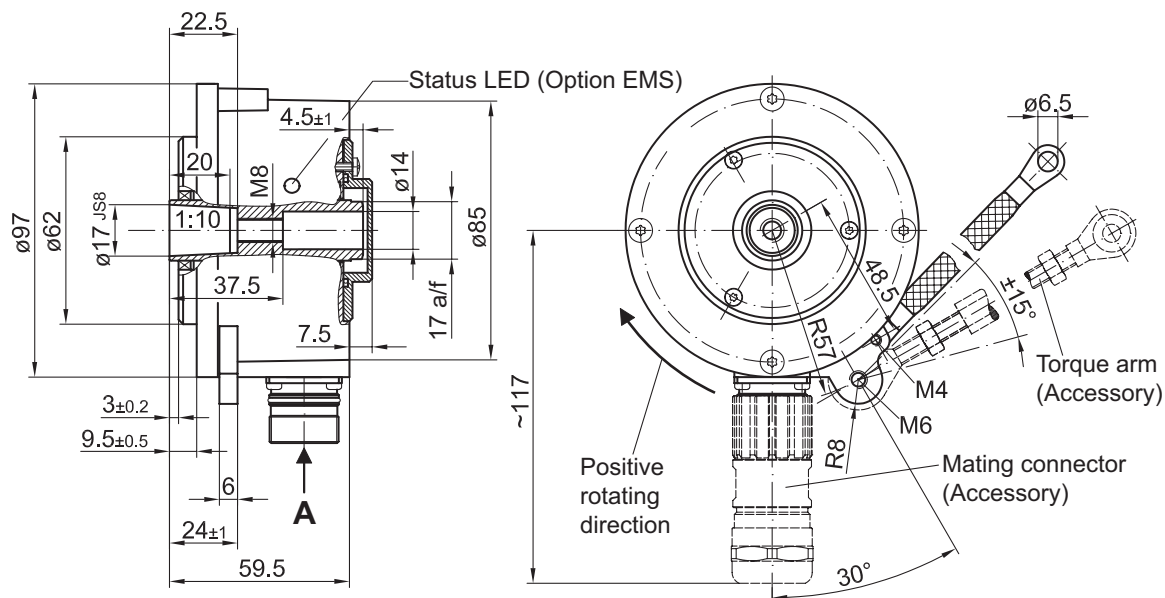
HOG 9

#### Dimensions

#### HOG 9 (HOG 9.2) - Version with blind hollow shaft



#### HOG 9 (HOG 9.2) - Version with cone shaft



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