

# Incremental encoders

## Blind hollow shaft or cone shaft

### 300...5000 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...5000
Phase shift	90° $\pm$ 20°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	$\leq$ 120 kHz $\leq$ 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
Approvals	CE, UL approval / E256710

### Features

- Optical sensing method
- Output stage HTL with power linedriver
- TTL output driver for cable length up to 500 m
- Operating temperature up to +100 °C
- Hybrid bearing for extended lifetime

### Optional

- Function control with EMS  
(Enhanced Monitoring System)

### Technical data - mechanical design

Size (flange)	$\varnothing$ 97 mm
Shaft type	$\varnothing$ 12...16 mm (blind hollow shaft) $\varnothing$ 17 mm (cone shaft 1:10)
Admitted shaft load	$\leq$ 400 N axial $\leq$ 500 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 -25...+100 °C (>3072 pulses per revolution)
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 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.



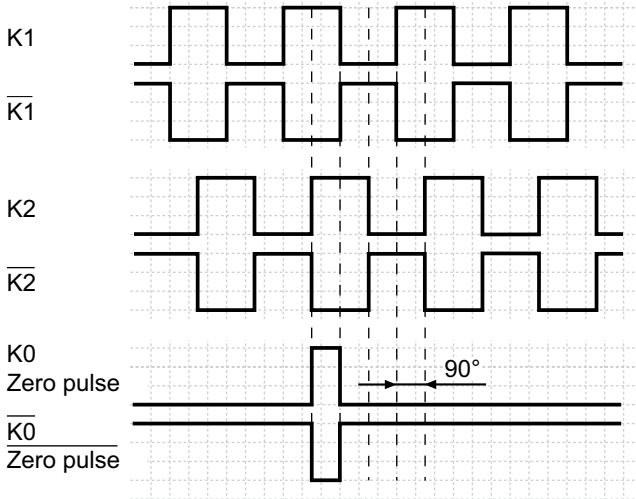
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### Output signals

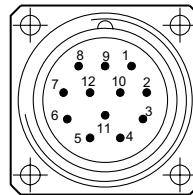
At positive rotating direction



### 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

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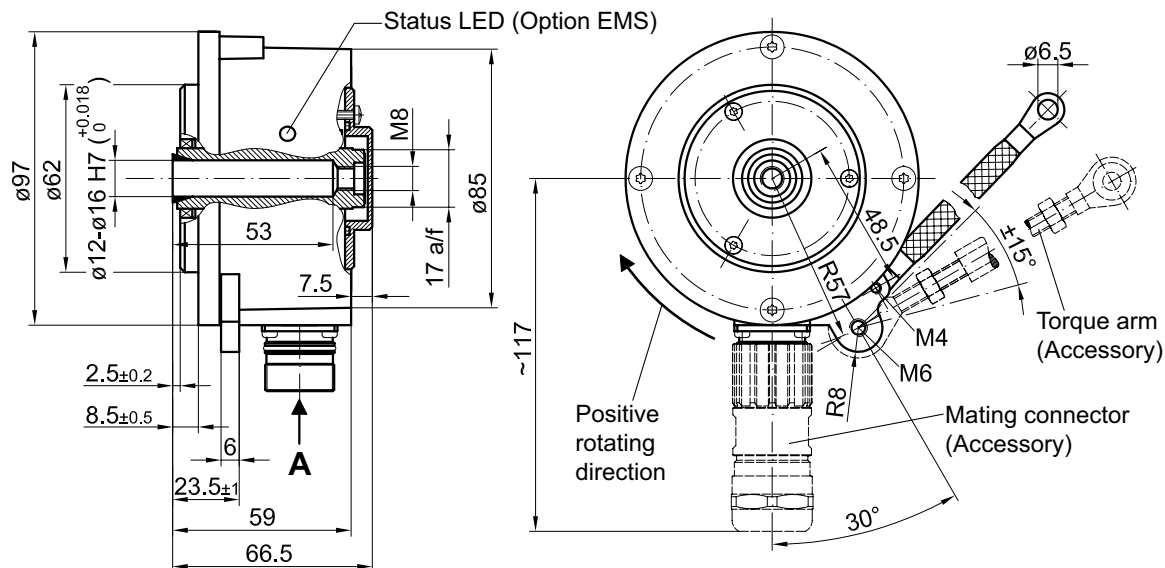
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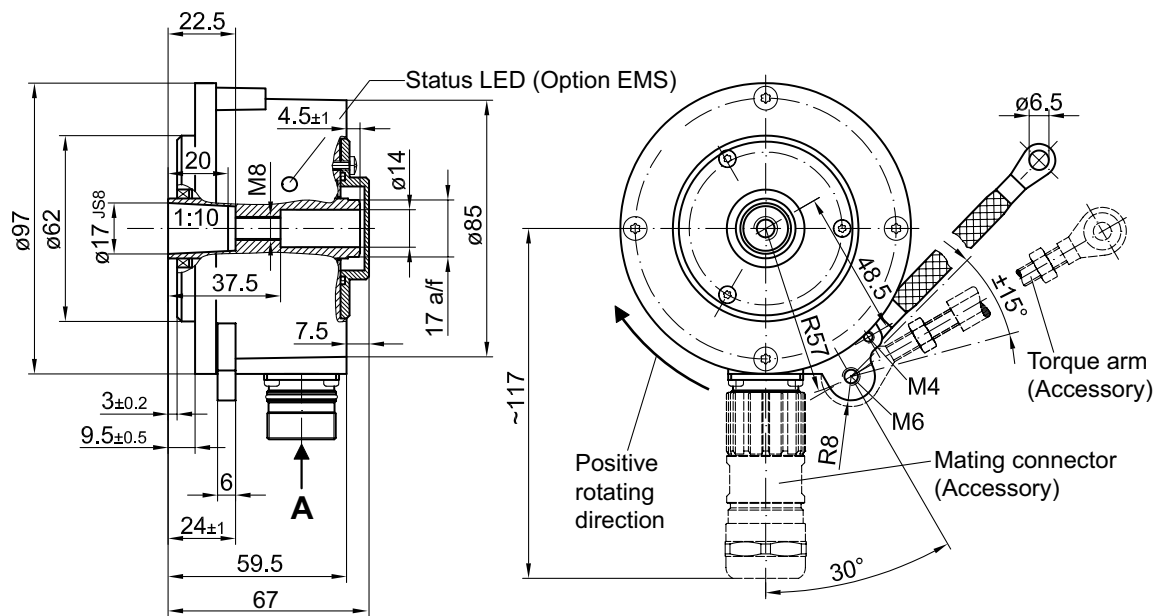
HOG 9

#### Dimensions

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



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



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