Incremental encoders

End shaft ø12-16 mm or cone shaft ø17 mm (1:10), resolution 100...2500 pulses

Option: Function control with EMS (Enhanced Monitoring System)

HOG 9

HOG 9

Features

- **End shaft ø12-16 mm or cone shaft ø17 mm (1:10)**
- **Optical sensing**
- **Logic level TTL or HTL**
- **Suitable to drive for lines max. 500 m (TTL)**
- **Protection against inductive shaft current by hybrid bearings**

Optional

- **Function control with EMS (Enhanced Monitoring System)**
- **Operating status LED and error output**

Technical data - electrical ratings

Voltage supply	5 VDC ±5 % 9...30 VDC
Consumption w/o load	≤100 mA
Resolution (steps/turn)	100...2500
Phase shift	90° ±20°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤120 kHz
Output signals	K1, K2, K0 + inverted
Output circuit	HTL (power linedriver) TTL (RS422)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Approval	UL approval / E256710

Technical data - mechanical design

Dimensions (flange)	ø97 mm
Shaft	ø12...16 mm end shaft ø17 mm cone shaft 1:10
Shaft loading	≤200 N axial ≤300 N radial
Motor shaft tolerance	0.2mm radial
Protection DIN EN 60529	IP 56
Operating speed	≤10000 rpm (mechanical)
Operating torque typ.	6 Ncm
Rotor moment of inertia	160 gcm²
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+85 °C
Resistance	IEC 60068-2-6 Vibration 10 g, 10-2000 Hz IEC 60068-2-27 Shock 100 g, 6 ms
Explosion protection	II3G Ex nA IIC T4 Gc (gas) II3D Ex tc IIIB T135°C Dc (dust)
Connection	Connector M23, 12-pin
Weight approx.	700 g

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Part number

HOG 9 | | | DN | | | | | | |

Shaft diameter
- 12H7 End shaft ø12 mm
- 16H7 End 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

See part number (pulses)

Output signals
- DN K1, K2, K0

EMS - Enhanced Monitoring System
- Without EMS
- .2 With EMS

Other pulse numbers upon request.

Part number (pulses)

100	250	512	1024	2500
120	300	600	1042	
180	360	720	1200	
192	400	900	1250	
200	500	1000	2048	

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 set for end shaft
11084868	Mounting and dismounting set for cone shaft
Diagnostic accessories	
HENQ 1100	Analyzer for encoders

Incremental encoders

End shaft ø12-16 mm or cone shaft ø17 mm (1:10), resolution 100...2500 pulses

Option: Function control with EMS (Enhanced Monitoring System)

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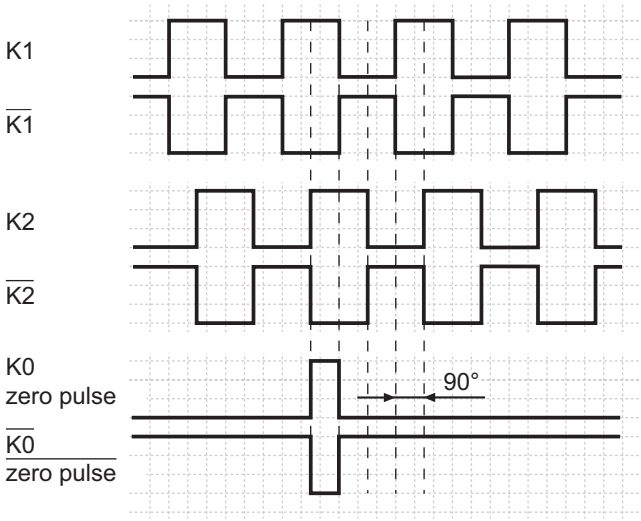
Output signals

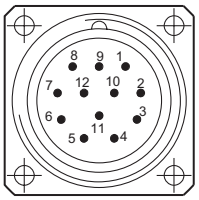
at positive rotating direction



Terminal assignment

View A - Flange socket, male contacts, clockwise

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



Option EMS: LED status / error output	
flash light red*	Error of signal sequenze, marker pulse or cycles (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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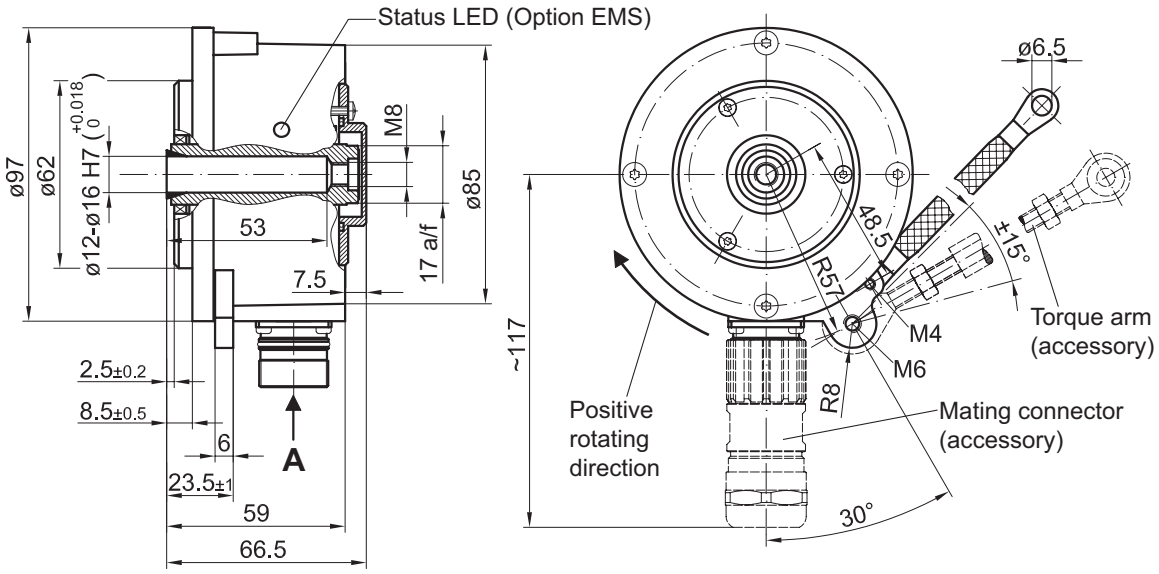
Dimensions

HOG 9(.2) - Version with cylinder shaft



HOG 9(.2) - Version with cone shaft