

Incremental encoders

Blind hollow shaft or cone shaft

300...5000 pulses per revolution



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HOG 10



HOG 10 with axial terminal cover

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 Error output (option EMS)
Output stages	HTL-P (power linedriver) TTL/RS422
Shaft insulation	2.8 kV
Transmission length	≤350 m at 100 kHz (HTL-P) ≤550 m at 100 kHz (TTL)
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approvals	CE, UL approval / E256710

Features

- TTL output driver for cable length up to 550 m
- Very high resistance to shock and vibrations
- Hybrid bearing for extended service life
- Shaft insulation up to 2.8 kV
- Large terminal box, turn by 180° or axial terminal cover

Optional

- Function control with EMS
- Redundant sensing with two terminal boxes
- With heating up to -50°C / With earthing brushes

Technical data - mechanical design

Size (flange)	ø105 mm
Shaft type	ø12...20 mm (blind hollow shaft) ø17 mm (cone shaft 1:10)
Admitted shaft load	≤450 N axial ≤600 N radial
Protection DIN EN 60529	IP 66
Operating speed	≤6000 rpm (mechanical)
Operating torque typ.	6 Ncm
Rotor moment of inertia	340 gcm ²
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-40...+100 °C -25...+100 °C (>3072 pulses per revolution) -50...+100 °C (optional)
Resistance	IEC 60068-2-6 Vibration 20 g, 10-2000 Hz IEC 60068-2-27 Shock 300 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 IIIC T135°C Dc (dust)
Connection	Terminal box Terminal cover 2x terminal box (with option M)
Weight approx.	1.6 kg, 1.8 kg (with option M)

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



Part number

Incremental encoder

HOG10

			DN								
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Connection
 KLK Terminal box, radial
 KLK-AX Terminal cover, axial (not for option M redundant)

Shaft diameter
 12H7 Blind hollow shaft ø12 mm
 16H7 Blind hollow shaft ø16 mm
 20H7 Blind hollow shaft ø20 mm
 17K Cone shaft ø17 mm (1:10)

Sealing system
 LR Dust protection
 SR Damp protection

Voltage supply / signals
 I 9...30 VDC / output stage HTL with inverted signals
 TTL 5 VDC / output stage TTL with inverted signals
 R 9...30 VDC / output stage TTL with inverted signals

Pulse number - see table

Output signals
 DN K1, K2, K0

Redundant sensing
 Without redundant sensing
 M With redundant sensing

EMS - Enhanced Monitoring System
 Without EMS
 .2 With EMS

Pulse number

300	1000	2048	4096
500	1024	2500	5000
512	1200	3072	

Other pulse numbers on request.

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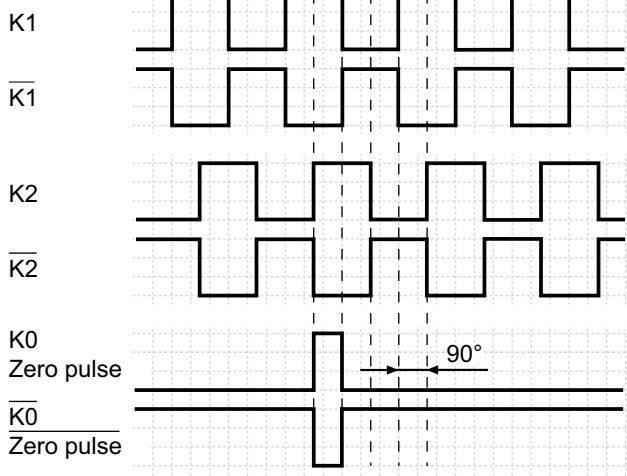


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Output signals

At positive rotating direction



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 driver (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

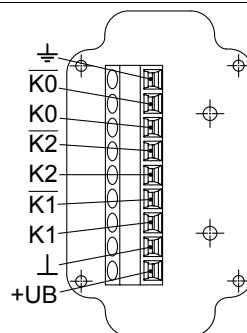
Terminal significance

+UB	Voltage supply (for the device)
⊥; ⚡; GND; 0 V	Ground (for the signals)
⊕; ⚡	Earth ground (housing)
K1; A; A+	Output signal channel 1
$\bar{K}1$; \bar{A} ; A-	Output signal channel 1 inverted
K2; B; B+	Output signal channel 2 (offset by 90° to channel 1)
$\bar{K}2$; \bar{B} ; B-	Output signal channel 2 (offset by 90° to channel 1) inverted
K0; C; R; R+	Zero pulse (reference signal)
$\bar{K}0$; \bar{C} ; \bar{R} ; R-	Zero pulse (reference signal) inverted
\bar{Err} ; Err-	Error output (option EMS)
dnu	Do not use

Terminal assignment

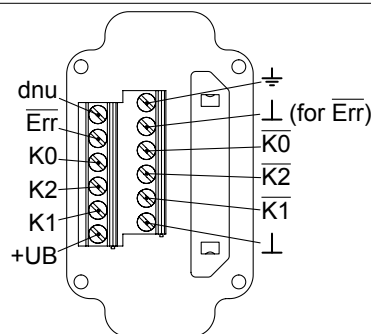
View A

Connecting terminal terminal box, radial



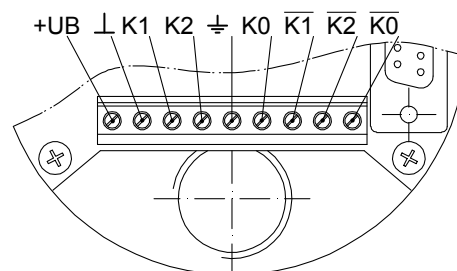
Option EMS: View A

Connecting terminal terminal box, radial



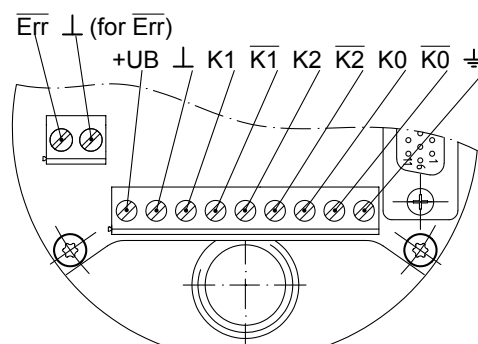
View B

Connecting terminal terminal cover, axial



Option EMS: View B

Connecting terminal terminal cover, axial



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Accessories

Connectors and cables

HEK 8	Sensor cable for encoders
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Mounting accessories

11043628	Torque arm M6, length 67-70 mm
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11004078	Torque arm M6, length 120-130 mm (shortenable ≥ 71 mm)
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11002915	Torque arm M6, length 425-460 mm (shortenable ≥ 131 mm)
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11054917	Torque arm M6 insulated, length 67-70 mm
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11072795	Torque arm M6 insulated, length 120-130 mm (shortenable ≥ 71 mm)
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11082677	Torque arm M6 insulated, length 425-460 mm (shortenable ≥ 131 mm)
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11077197	Mounting kit for torque arm size M6 and earthing strap
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11077087	Mounting and dismounting set
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Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
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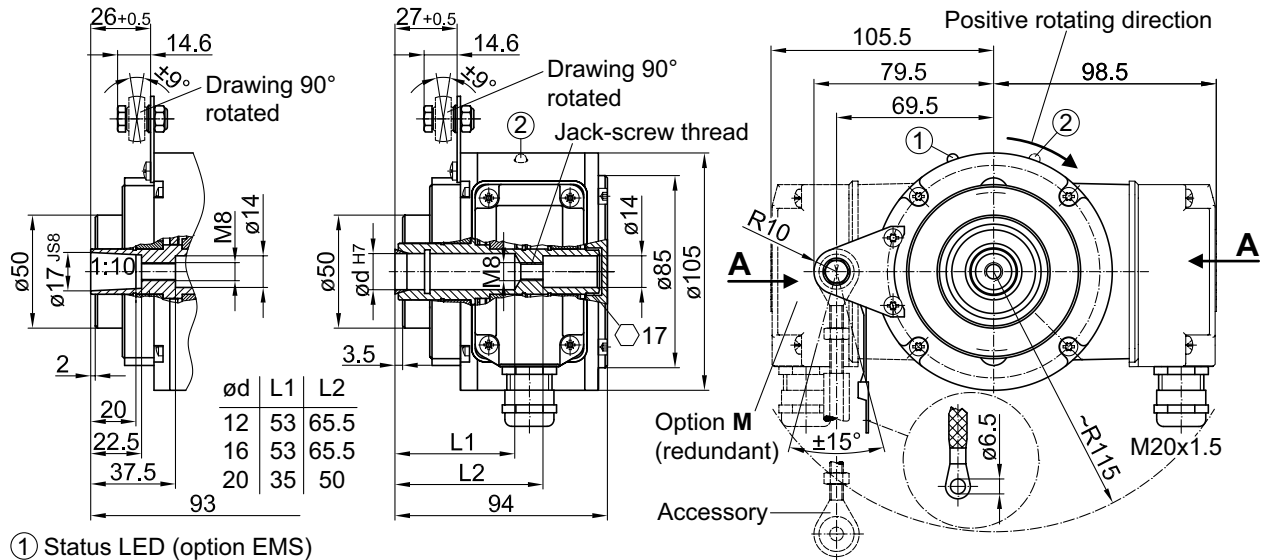


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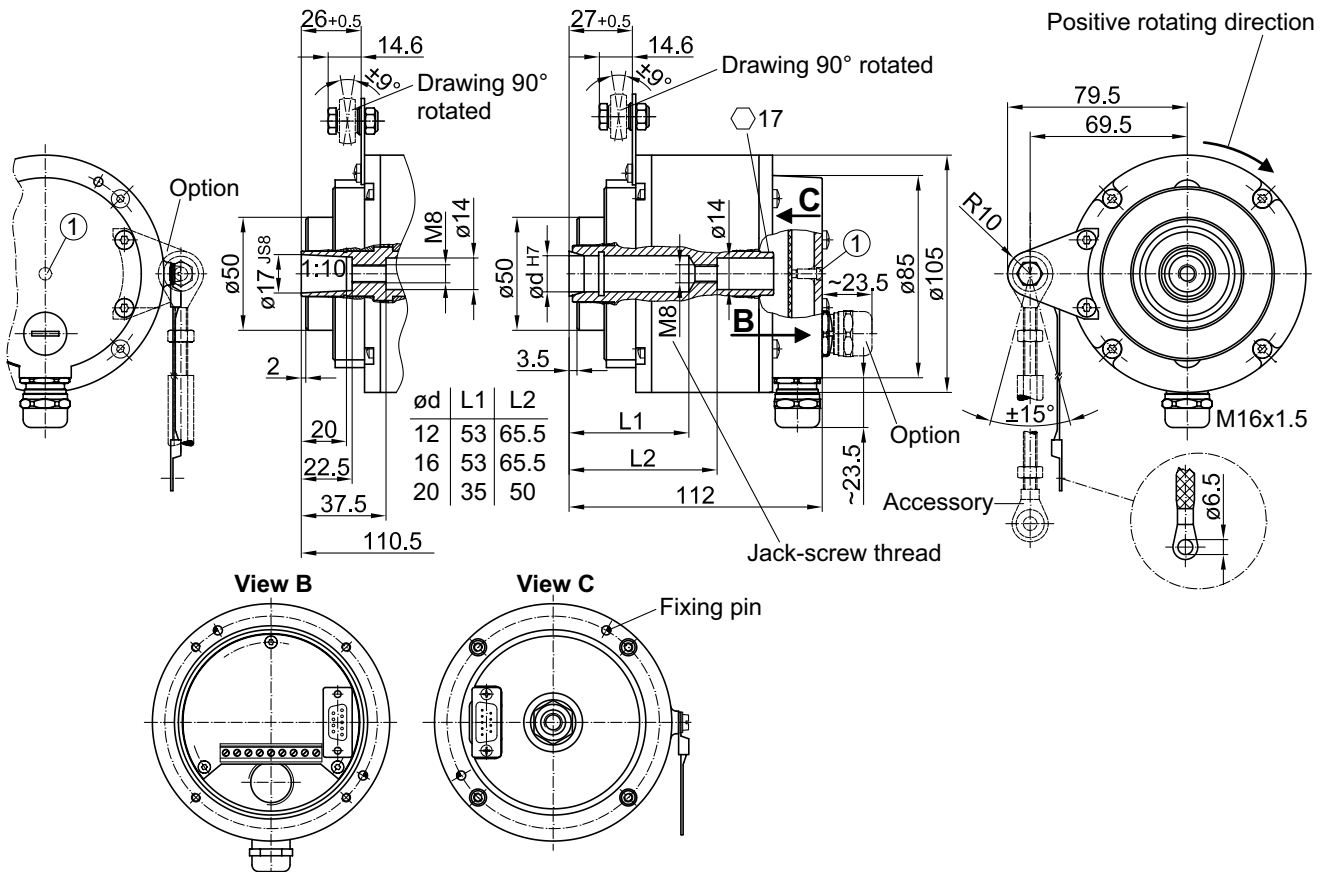
Dimensions

HOG 10 (HOG 10.2, HOG 10 M, HOG 10.2 M) - Version with radial terminal box



- ① Status LED (option EMS)
- ② Status LED (option M (redundant) and EMS)

HOG 10 (HOG 10.2) - Version with axial terminal cover



- ① Status LED (option EMS)

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