

Incremental encoders

Redundant sensing, isolated blind hollow shaft $\varnothing 12...16$ mm, cone shaft $\varnothing 17$ mm

500...5000 pulses per revolution

HOG 86 M



HOG 86.2 M T

Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC ± 5 %
Consumption w/o load	≤ 100 mA
Pulses per revolution	500...5000
Phase shift	$90^\circ \pm 20^\circ$
Duty cycle	45...55 % (40...60 % >3072 pulses per revolution)
Reference signal	Zero pulse, width 90°
Operating principle	Redundant sensing
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/ CSA approval / E256710

Features

- Robust, compact housing
- Two bearings with large distance, one at each end
- High shaft load up to 450 N
- Shock resistant up to 250 g
- Shaft insulation up to 2.8 kV
- Highest operating speed 10000 rpm
- Terminal boxes, turn by 180°
- Redundant sensing

Optional

- Function control with EMS
(Enhanced Monitoring System)

Technical data - mechanical design

Size (flange)	$\varnothing 99$ mm
Shaft type	$\varnothing 12...16$ mm (blind hollow shaft) $\varnothing 17$ mm (cone shaft 1:10)
Admitted shaft load	≤ 350 N axial ≤ 450 N radial
Motor shaft tolerance	± 0.2 mm radial
Protection DIN EN 60529	IP 66
Operating speed	≤ 10000 rpm (mechanical)
Operating torque	≤ 6 Ncm
Rotor moment of inertia	160 gcm ²
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	$-40...+100$ °C $-25...+100$ °C (>3072 pulses per revolution)
Resistance	IEC 60068-2-6 Vibration 15 g, 10-2000 Hz IEC 60068-2-27 Shock 250 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	2x terminal box
Weight approx.	1.4 kg

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Part number

HOG86

	M	T	H			DN			
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Voltage supply / signals

- I 9...30 VDC / output stage HTL with inverted signals
- T 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 + inverted

Shaft diameter

- 2 Blind hollow shaft $\varnothing 12$ mm, fit H7
- 9 Blind hollow shaft $\varnothing 12$ mm, fit F6
- 6 Blind hollow shaft $\varnothing 16$ mm, fit H7
- 8 Blind hollow shaft $\varnothing 16$ mm, fit G7
- 7 Cone shaft $\varnothing 17$ mm (1:10)

Insulation

H Hybrid bearing

Connection

T 2x terminal boxes, radial

EMS - Enhanced Monitoring System

Without EMS

.2 With EMS

Pulse number

500	1000	1250	2500	4096
512	1024	2048	3072	5000

Incremental encoders

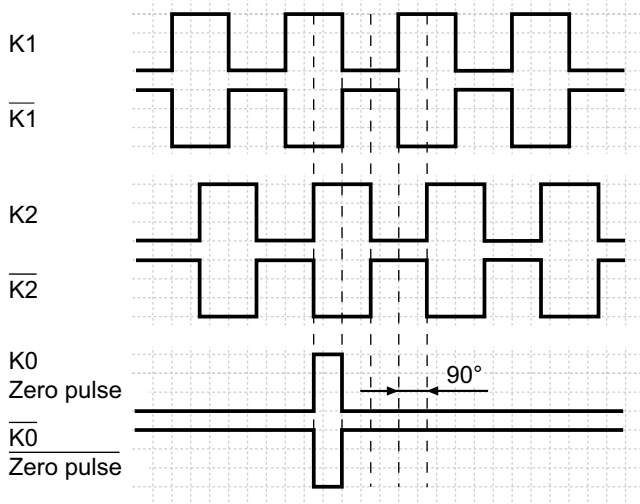
Redundant sensing, isolated blind hollow shaft $\varnothing 12...16$ mm, cone shaft $\varnothing 17$ mm

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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

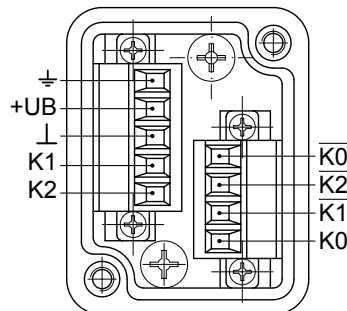
Terminal significance

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

Terminal assignment

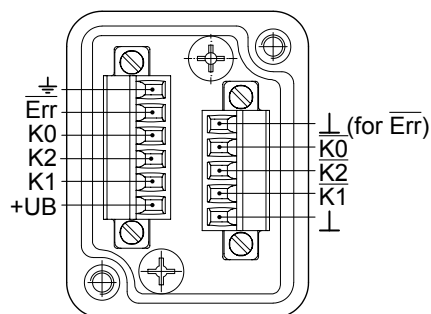
HOG 86 M T - View A

Connecting terminal terminal box



HOG 86.2 M T - View A

Connecting terminal terminal box



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Accessories

Connectors and cables

HEK 8	Sensor cable for encoders
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Mounting accessories

11071906	Mounting kit earthing strap
11077087	Mounting and dismounting set
11071850	Support plate mounting kit R63 for torque arm size M6
11082676	Support plate mounting kit R69 for torque arm size M6
11072076	Screw mounting kit for torque arm size M6
11043628	Torque arm M6, length 67-70 mm
11004078	Torque arm M6, length 120-130 mm (shortenable ≥ 71 mm)
11002915	Torque arm M6, length 425-460 mm (shortenable ≥ 131 mm)
11054917	Torque arm M6 insulated, length 67-70 mm
11072795	Torque arm M6 insulated, length 120-130 mm (shortenable ≥ 71 mm)
11082677	Torque arm M6 insulated, length 425-460 mm (shortenable ≥ 131 mm)
11071904	Mounting kit for torque arm size M6

Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
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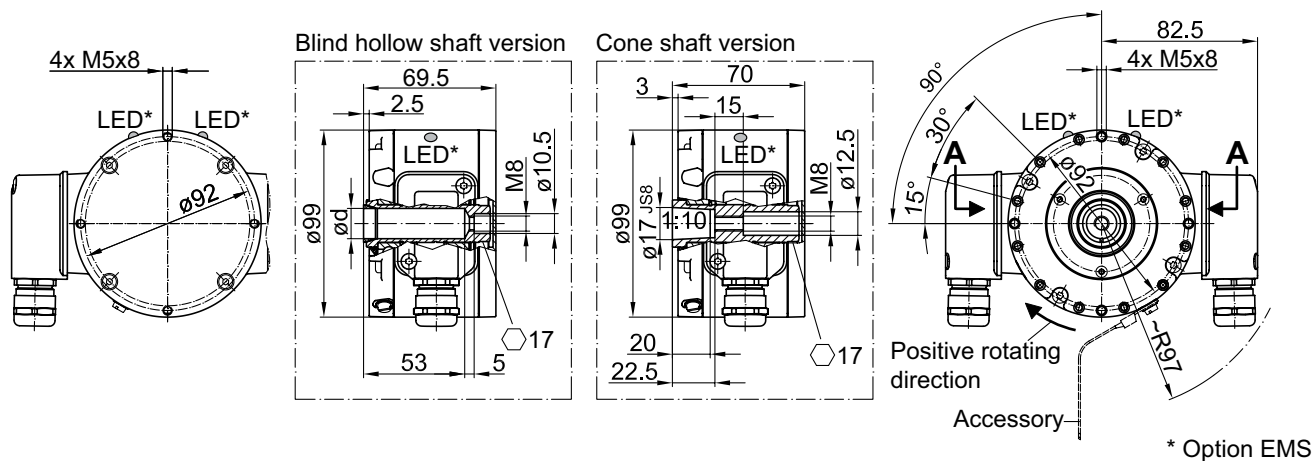
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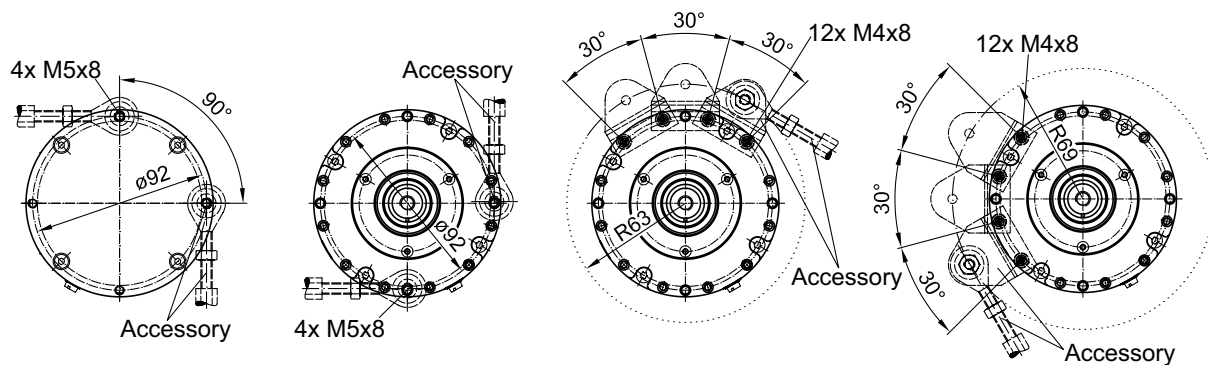
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Dimensions

HOG 86 M T



Mounting possibilities



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