

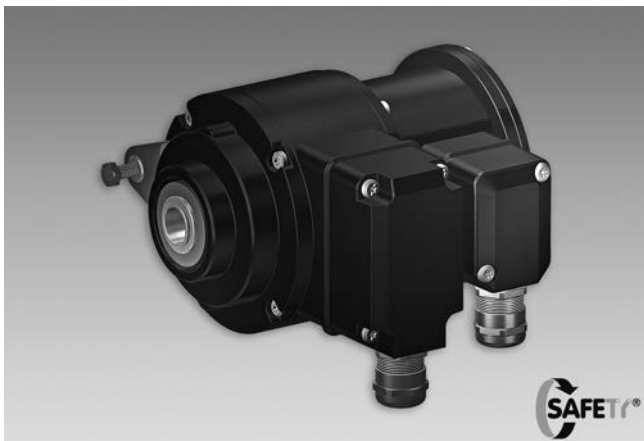
Combination

Encoder with integrated electronic speed switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 10 + ESL 90



HOG 10 + ESL 90

Features

- TTL output driver for cable length up to 550 m
- Electronic speed monitoring
- Circuit breaker with up to three selectable threshold speeds
- Hybrid bearing for extended service life
- Terminal boxes, turn by 180°

Optional

- Function control with EMS (Enhanced Monitoring System)
- Redundant sensing with two terminal boxes

Technical data - electrical ratings

Shaft insulation	Suitable up to 2.8 kV
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

Technical data - electrical ratings (encoder)

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°
Duty cycle	40...60 %
Reference signal	Zero pulse, width 90°
Output frequency	\leq 120 kHz \leq 300 kHz (on request)
Output signals	K1, K2, K0 + inverted Error output (option EMS)
Output stages	HTL, TTL/RS422

Technical data - electrical ratings (speed switches)

Switching accuracy	\pm 4 % (\leq 1500 rpm) \pm 2 % ($>$ 1500 rpm)
Switching hysteresis	\approx 30 % of switching speed
Switching outputs	1 output, speed control
Output switching capacity	\leq 6 A / 250 VAC; \leq 1 A / 48 VDC
Minimum switching current	100 mA
Switching delay time	\leq 40 ms

Technical data - mechanical design

Size (flange)	\varnothing 105 mm
Shaft type	\varnothing 16...20 mm (blind hollow shaft) \varnothing 17 mm (cone shaft 1:10)
Admitted shaft load	\leq 450 N axial, \leq 600 N radial
Protection DIN EN 60529	IP 66
Operating speed	\leq 6000 rpm
Range of switching speed (ns)	650...6000 rpm
Operating torque typ.	6 Ncm
Rotor moment of inertia	680 gcm ²
Materials	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-20...+85 °C
Resistance	IEC 60068-2-6 Vibration 5 g, 10-2000 Hz IEC 60068-2-27 Shock 50 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
Shaft insulation	2.8 kV
Transmission length	\leq 350 m at 100 kHz (HTL-P) \leq 550 m at 100 kHz (TTL)
Connection	2x terminal box 3x terminal box (with option M)
Weight approx.	2.3 kg, 2.5 kg (with option M)
Approval	CE

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Part number

HOG10

		DN									+ ESL90		...
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Switching speed (ns)

... 650...6000 rpm

Shaft diameter

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.

* Please specify the exact switching speed in addition to the part number (factory setting).

Accessories

Connectors and cables

HEK 8	Sensor cable for encoders
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Mounting accessories

11077197	Mounting kit for torque arm size M6 and earthing strap
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11077087	Mounting and dismounting set
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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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Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
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11075880	Analyzer for encoders HENQ 1100 with a power pack
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Encoder with integrated electronic speed switch

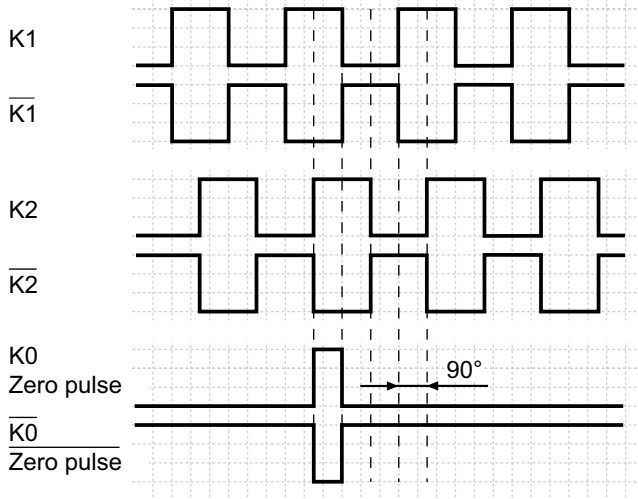
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Output signals

At positive rotating direction



Option EMS: LED status / Error output

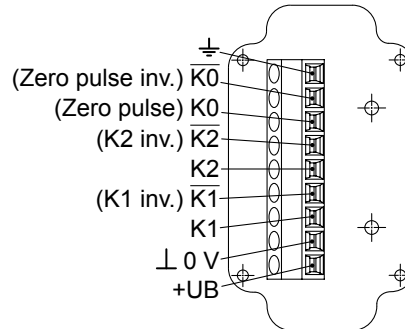
Flash light red*	Error of signal sequence, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output driver (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or wrong connection (Error output = LOW)

* Only at rotating device

Terminal assignment

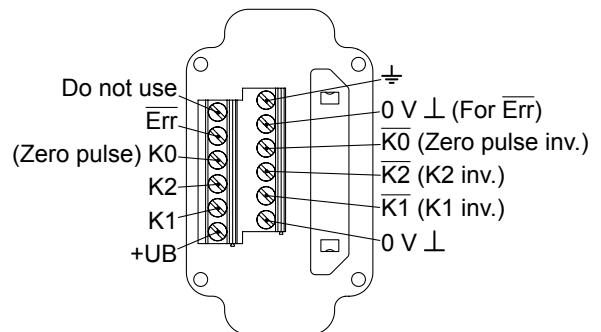
View A

Connecting terminal terminal box HOG 10



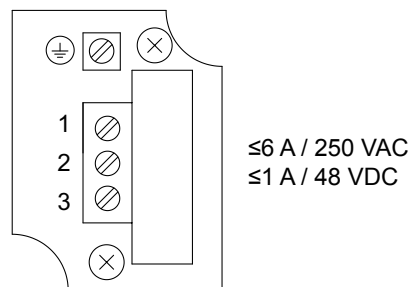
Option EMS: View A

Connecting terminal terminal box HOG 10.2



View B

Connecting terminal electronic speed switch ESL 90

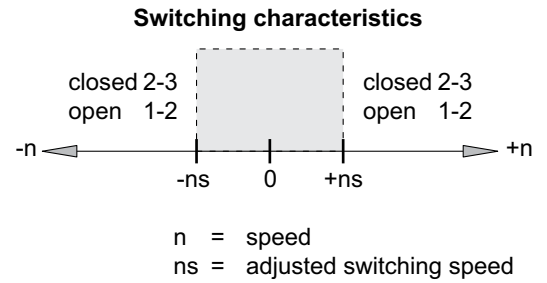
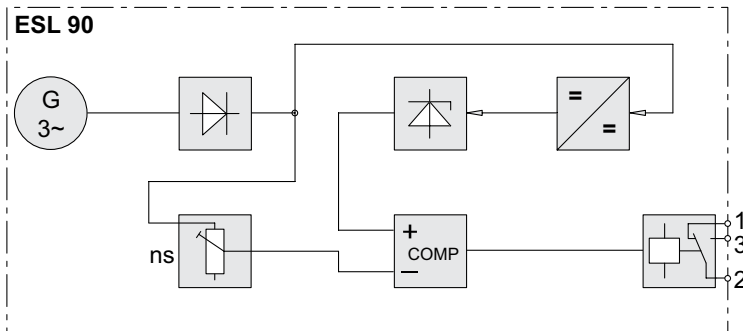


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Block circuit diagram



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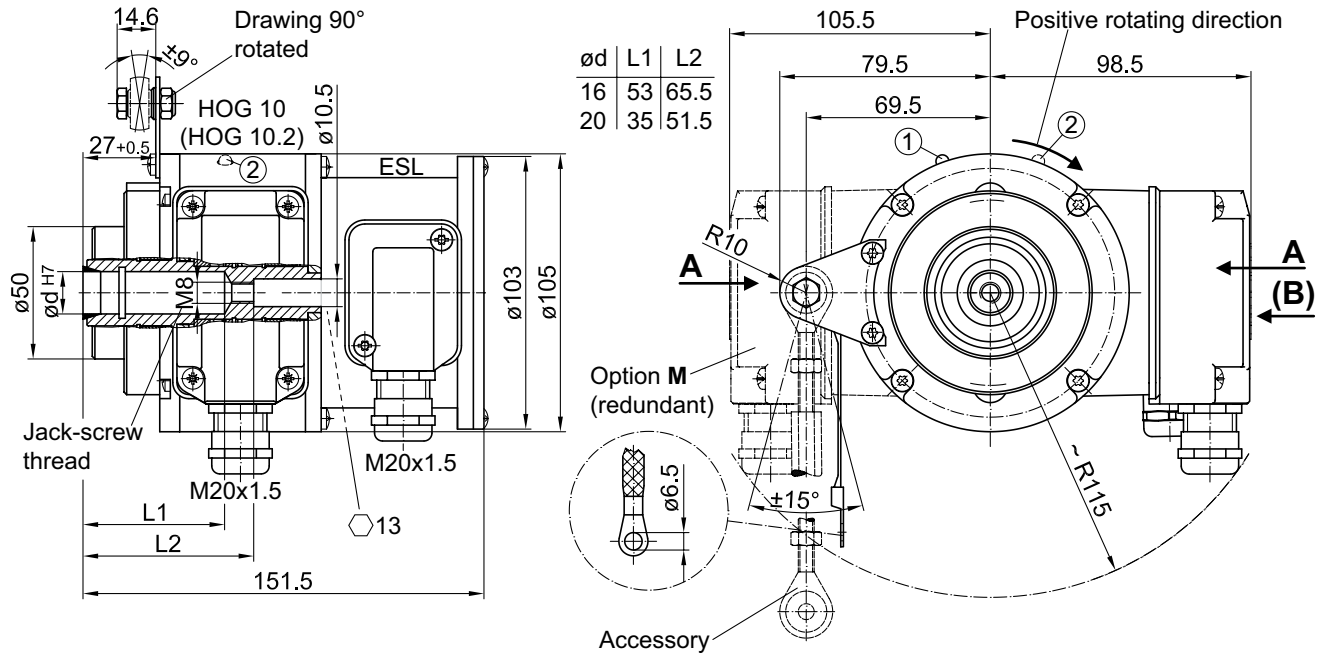
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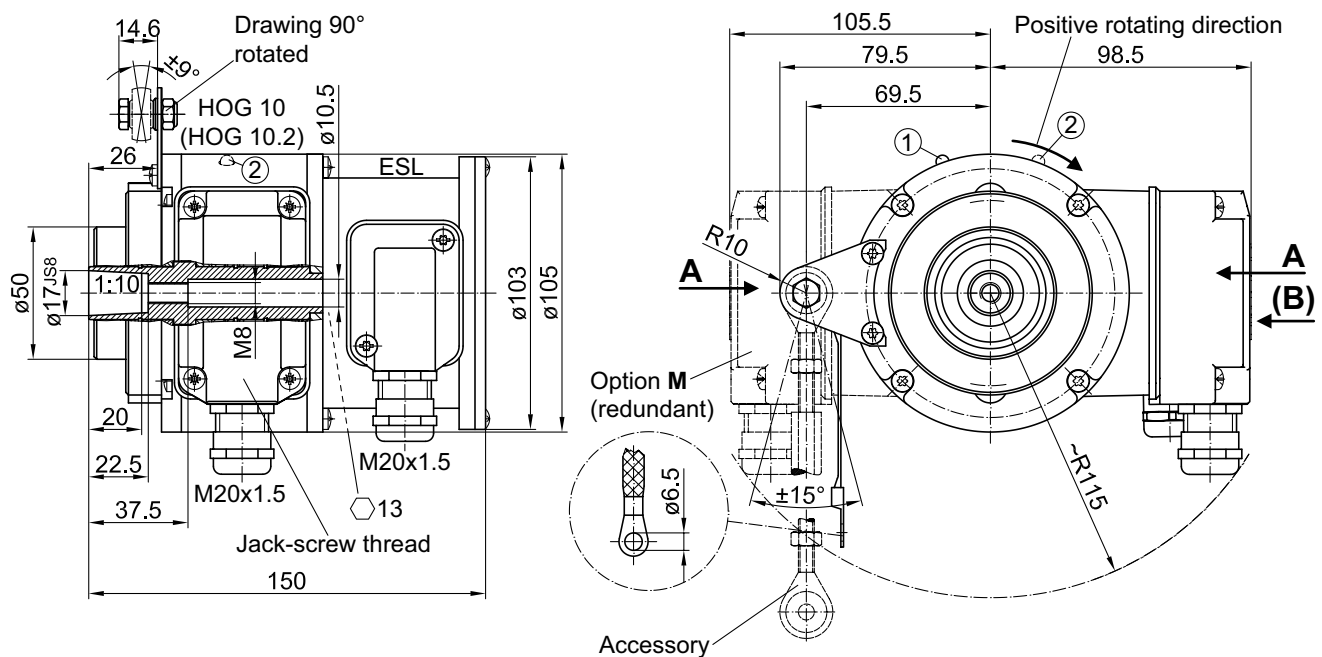
Dimensions

Blind hollow shaft



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

Cone shaft



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