

Combination

Encoder with integrated centrifugal switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 11 + FSL



HOG 11 + FSL

Features

- Offshore and salt water firm, high protection IP 67
- TTL output driver for cable length up to 550 m
- Mechanical speed monitoring based on centrifugal force
- Hybrid bearing for extended lifetime
- Terminal boxes, turn by 180°

Optional

- Function control with EMS (Enhanced Monitoring System)
- Redundant sensing with two terminal boxes
- With heating up to -50°C

Technical data - electrical ratings

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
Approval	CE

Technical data - electrical ratings (encoder)

Voltage supply	9...30 VDC; 5 VDC ±5 %
Consumption w/o load	≤100 mA
Pulses per revolution	300...5000
Phase shift	90° ±20°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90°
Output frequency	≤120 kHz ≤300 kHz (on request)
Output signals	K1, K2, K0 + inverted Error output (only EMS)
Output stages	HTL-P (power linedriver) TTL/RS422
Sensing method	Optical

Technical data - electrical ratings (centrifugal switch)

Switching accuracy	±4 % ($\Delta n = 2$ rpm/s); = +20 % ($\Delta n = 1500$ rpm/s)
Switching deviation	≤3 % (cw-ccw rotation)
Switching hysteresis	~40 % of switching speed
Switching outputs	1 output, speed control
Output switching capacity	≤6 A / 230 VAC ≤1 A / 125 VDC
Minimum switching current	50 mA

Technical data - mechanical design

Size (flange)	ø105 mm
Shaft type	ø16...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 67
Speed (n)	≤1.25 · ns
Range of switching speed (ns)	850...4500 rpm ($\Delta n = 2$ rpm/s)
Operating torque typ.	6 Ncm
Rotor moment of inertia	680 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 5 g, 10-2000 Hz IEC 60068-2-27 Shock 50 g, 11 ms
Corrosion protection	IEC 60068-2-52 Salt mist Complies to ISO 12944-5:1998 Protective paint systems (C5-M)
Connection	2x terminal box 3x terminal box (with option M)
Weight approx.	2.2 kg, 2.4 kg (with option M)

Combination

Encoder with integrated centrifugal switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 11 + FSL

Part number

Incremental encoder with centrifugal force switch FSL

HOG11 **DN** **SR** **+ FSL**

Switching speed (ns)
 6 850...949 rpm ($\Delta n = 2$ rpm/s)*
 5 950...1099 rpm ($\Delta n = 2$ rpm/s)*
 4 1100...1299 rpm ($\Delta n = 2$ rpm/s)*
 3 1300...1799 rpm ($\Delta n = 2$ rpm/s)*
 2 1800...2499 rpm ($\Delta n = 2$ rpm/s)*
 1 2500...4500 rpm ($\Delta n = 2$ rpm/s)*

Shaft diameter
 16H7 Blind hollow shaft $\varnothing 16$ mm
 20H7 Blind hollow shaft $\varnothing 20$ mm
 17K Cone shaft $\varnothing 17$ mm (1:10)

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 setted threshold).

Combination

Encoder with integrated centrifugal switch

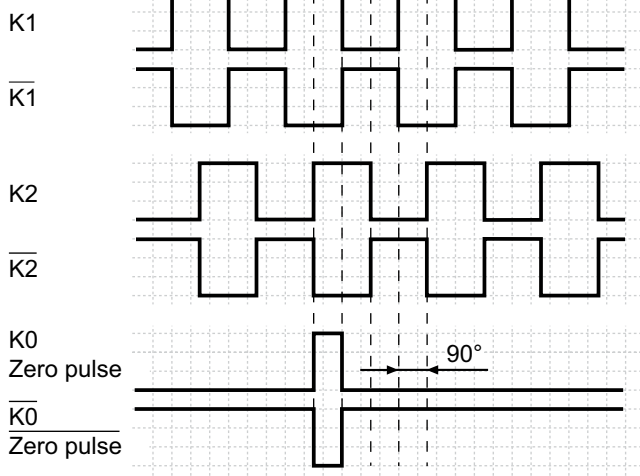
Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 11 + FSL

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	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

Accessories

Connectors and cables

HEK 8 Sensor cable for encoders

Mounting accessories

Torque arm size M6

11077197 Mounting kit for torque arm size M6 and earthing strap

11077087 Mounting and dismantling set

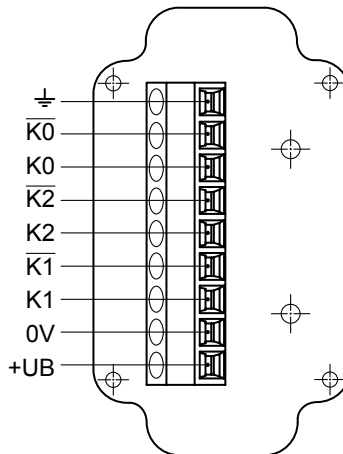
Diagnostic accessories

11075858 Analyzer for encoders HENQ 1100

Terminal assignment

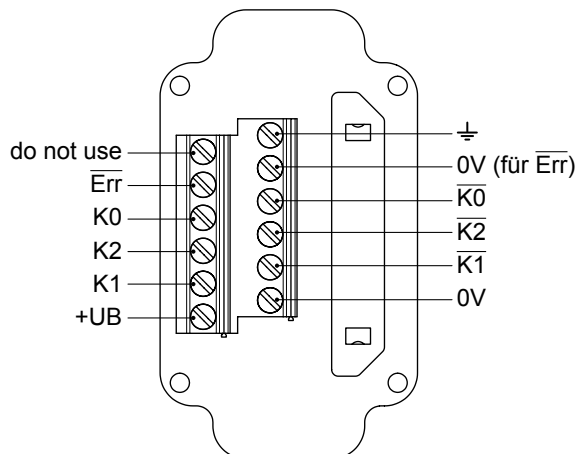
View A

Connecting terminal in terminal box HOG 11



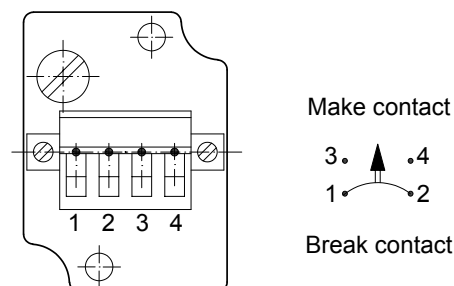
Option EMS: View A

Connecting terminal in terminal box HOG 11.2



View B

Connecting terminal mechanical centrifugal switch FSL



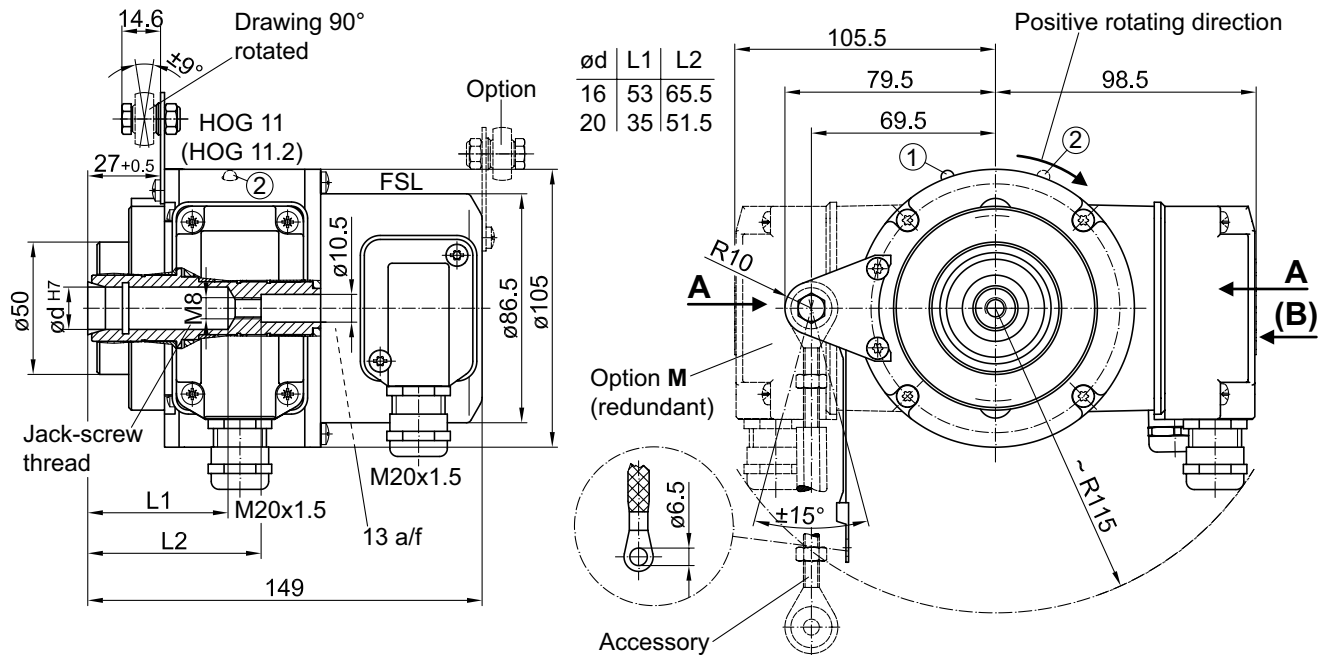
Combination

Encoder with integrated centrifugal switch
Blind hollow shaft or cone shaft
300...5000 pulses per revolution

HOG 11 + FSL

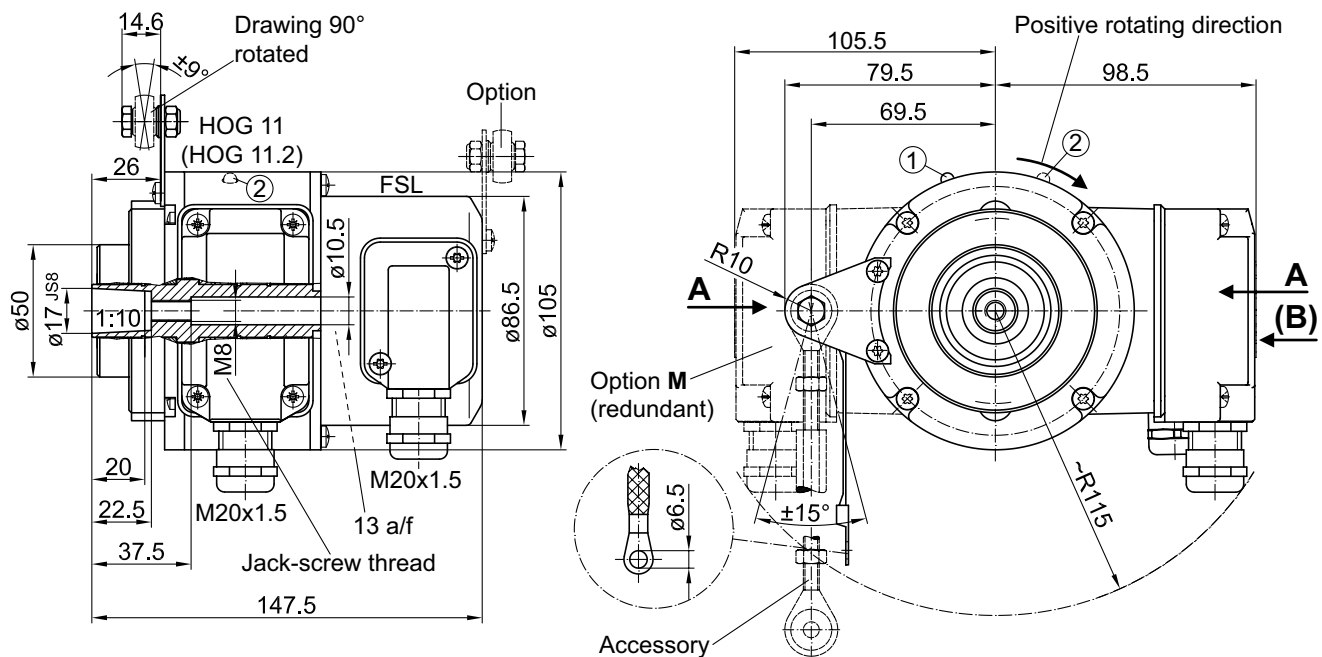
Dimensions

HOG 11 + FSL (HOG 11.2 + FSL, HOG 11 M + FSL, HOG 11.2 M + FSL) - Version with blind hollow shaft



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

HOG 11 + FSL (HOG 11.2 + FSL, HOG 11 M + FSL, HOG 11.2 M + FSL) - Version with cone shaft



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