

Combination

Encoder with integrated centrifugal switch

Insulated blind hollow shaft $\varnothing 16$ mm, cone shaft $\varnothing 17$ mm

500...5000 pulses per revolution

HOG 86 + FSL



HOG 86 + FSL

Technical data - electrical ratings

Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

Technical data - electrical ratings (encoder)

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°
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
Sensing method	Optical
Shaft insulation	2.8 kV
Transmission length	≤ 350 m at 100 kHz (HTL-P) ≤ 550 m at 100 kHz (TTL)

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

Features

- Mechanical speed monitoring based on centrifugal force
- Robust, compact housing
- Two-sided bearing system with optimal bearing spacing
- Shaft load up to 450 N, shaft insulation up to 2.8 kV
- Terminal boxes, turn by 180°

Optional

- Hybrid bearings for 3 times longer service life
- Function control with EMS (Enhanced Monitoring System)
- Redundant sensing with two terminal boxes

Technical data - mechanical design

Size (flange)	$\varnothing 105$ mm
Shaft type	$\varnothing 16$ mm (blind hollow shaft) $\varnothing 17$ mm (cone shaft 1:10)
Admitted shaft load	≤ 350 N axial ≤ 450 N radial
Protection DIN EN 60529	IP 66
Speed (n)	$\leq 1.25 \cdot ns$
Range of switching speed (ns)	850...4500 rpm ($\Delta n = 2$ rpm/s)
Operating torque typ.	6 Ncm
Rotor moment of inertia	200 gcm ²
Materials	Housing: aluminium, coated Shaft: stainless steel
Operating temperature	-40...+100 °C -25...+100 °C (>3072 pulses per revolution)
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 for ambient conditions C4 according to ISO 12944-2
Connection	2x terminal box 3x terminal box (with option M)
Weight approx.	1.9 kg, 2 kg (with option M)
Approval	CE

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Part number

HOG86 [] [] **T** [] [] [] **DN** [] [] [] [] **+ FSL** [] []

Switching speed (ns)

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

Voltage supply / signals

I	9...30 VDC / output stage HTL with inverted signals
T	5 VDC / output stage TTL + inverted signals
R	9...30 VDC / output stage TTL with inverted signals

Pulse number - see table

Output signals

DN K1, K2, K0

Shaft diameter

6	Blind hollow shaft ø16 mm, fit H7
7	Cone shaft ø17 mm (1:10)

Insulation

H	Hybrid bearing
P	PA insulated (not possible at redundant sensing)

Redundant sensing

	Without redundant sensing
M	With redundant sensing

EMS - Enhanced Monitoring System

	Without EMS
.2	With EMS

Pulse number

500	1000	1250	2500	4096
512	1024	2048	3072	5000

Other pulse numbers on request.

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

25/1/2019 Subject to modification in technic and design. Errors and omissions excepted.

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Encoder with integrated centrifugal switch

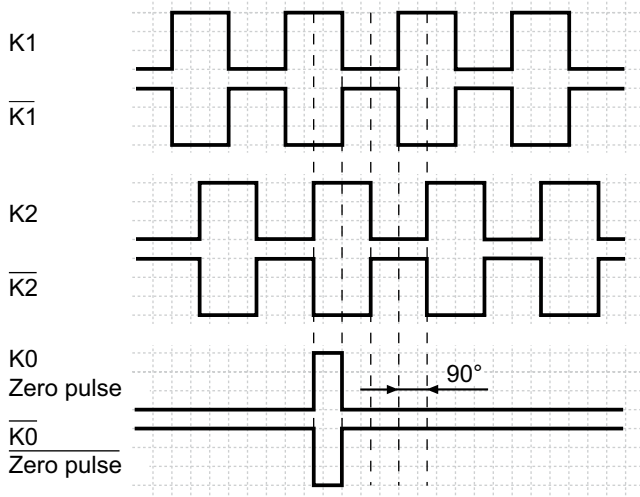
Insulated blind hollow shaft $\varnothing 16$ mm, cone shaft $\varnothing 17$ mm

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Output signals

At positive rotating direction



Accessories

Connectors and cables

HEK 8 Sensor cable for encoders

Mounting accessories

11077087 Mounting and dismantling set

11071906 Mounting kit earthing strap

Torque arm size M6

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

11071904 Mounting kit for torque arm size M6

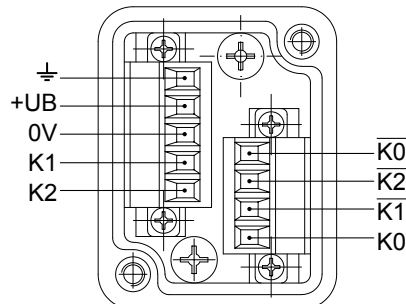
Diagnostic accessories

11075858 Analyzer for encoders HENQ 1100

Terminal assignment

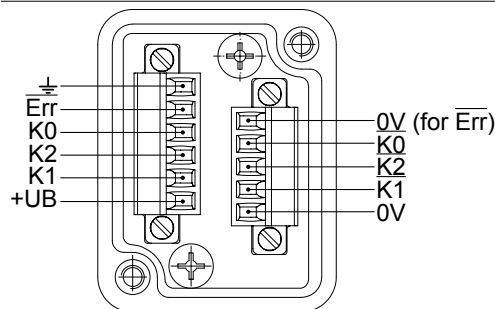
View A

Connecting terminal in terminal box HOG 86



Option EMS: View A

Connecting terminal in terminal box HOG 86.2



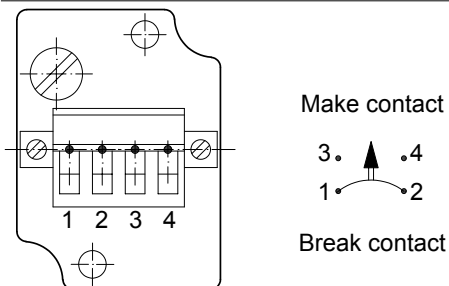
LED status / Error output

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

View B

Connecting terminal mechanical centrifugal switch FSL



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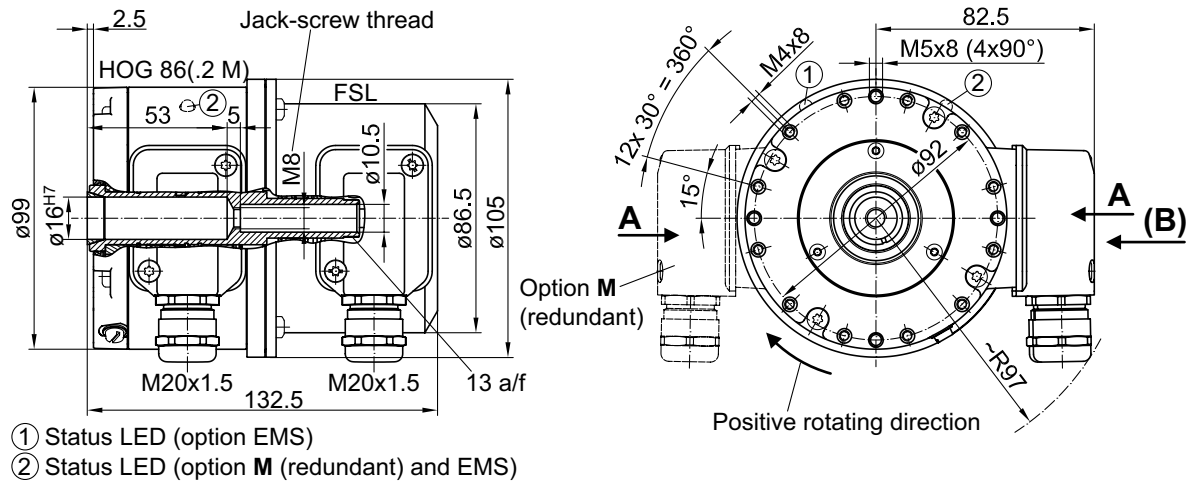
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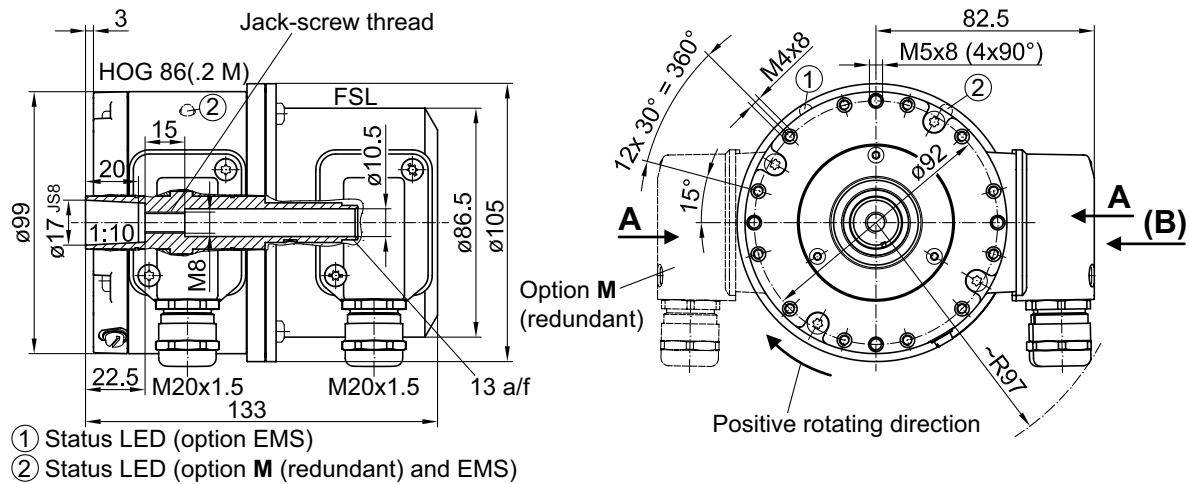
HOG 86 + FSL

Dimensions

Blind hollow shaft



Cone shaft



Mounting possibilities

