

Combination

Encoder with integrated centrifugal switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 10 + FSL



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Features

- TTL output driver for cable length up to 550 m
- Mechanical speed monitoring based on centrifugal force
- 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
- With heating up to -50°C

Technical data - electrical ratings

Shaft insulation	Suitable up to 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°
Duty cycle	40...60 %
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

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 66
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	400 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 for ambient conditions C4 according to ISO 12944-2
Connection	2x terminal box 3x terminal box (with option M)
Weight approx.	2.2 kg, 2.4 kg (with option M)

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Part number

HOG10 | | | DN | | | | | | + 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) |

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).

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Encoder with integrated centrifugal switch

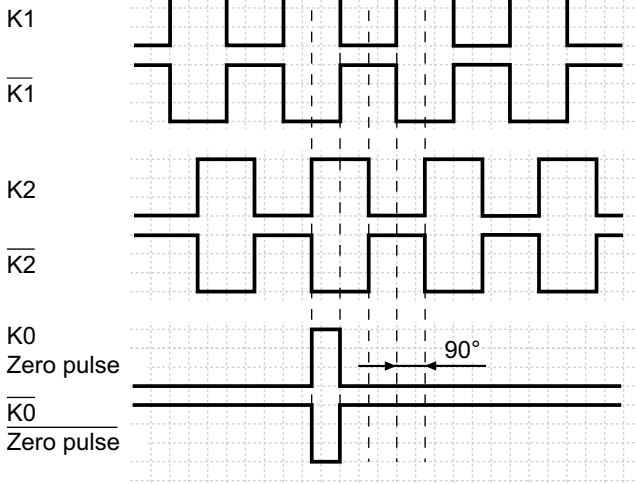
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Output signals

At positive rotating direction



Option EMS: LED status / Error output

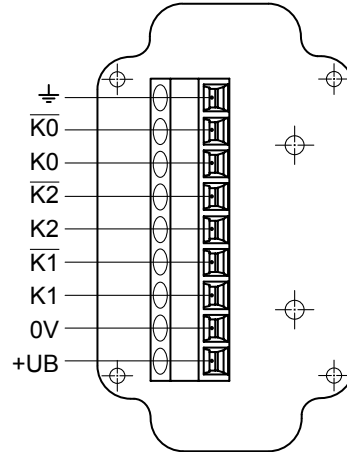
Flash light red*	Error of signal sequence, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output driver (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or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

* Only at rotating device

Terminal assignment

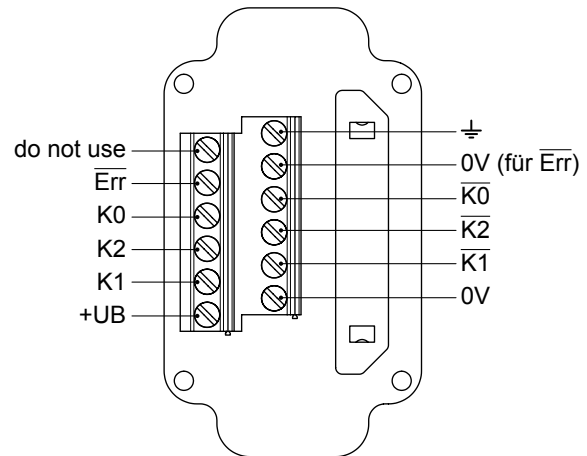
View A

Connecting terminal in terminal box HOG 10



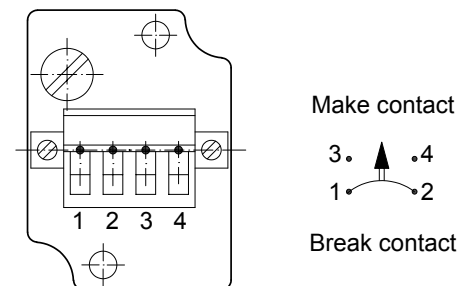
Option EMS: View A

Connecting terminal in terminal box HOG 10



View B

Connecting terminal mechanical centrifugal switch FSL



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 dismantling 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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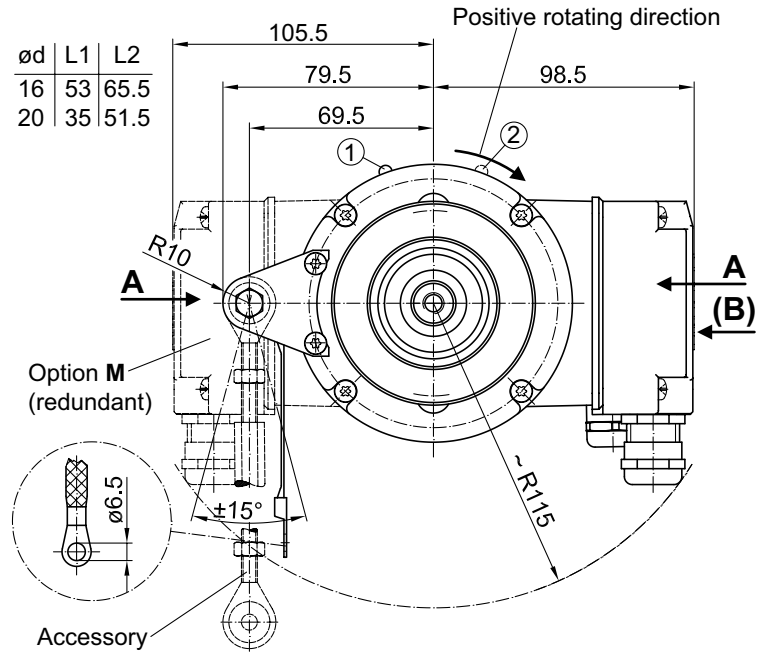
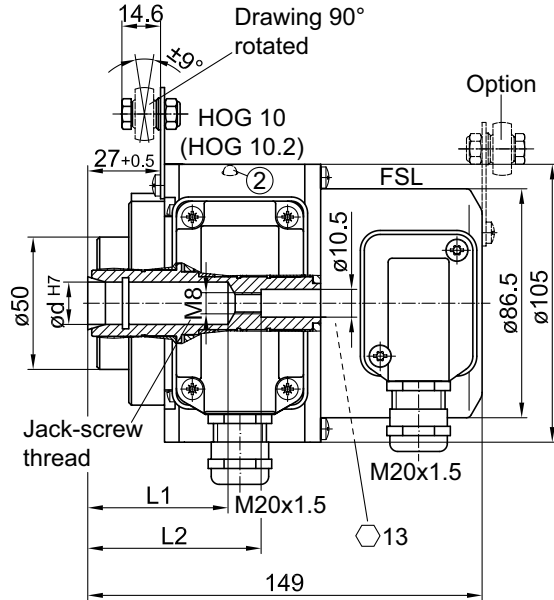
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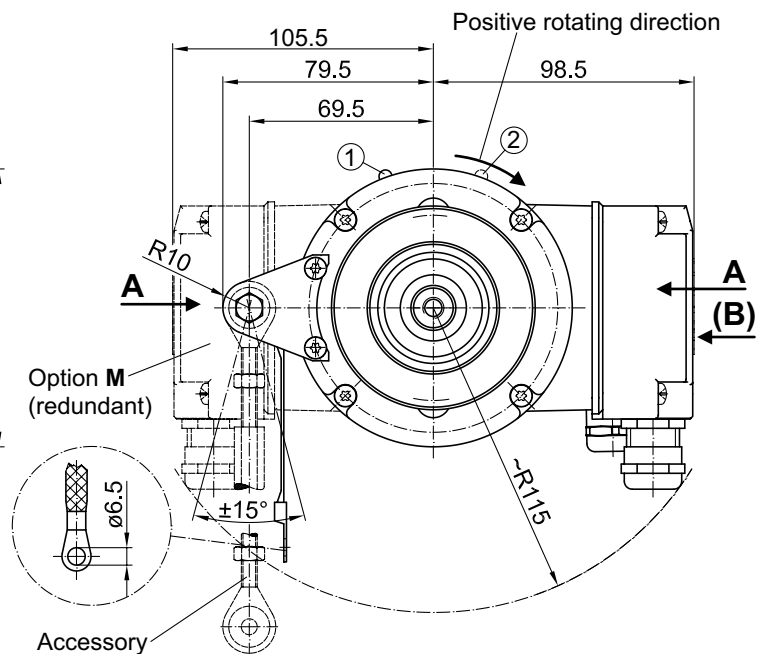
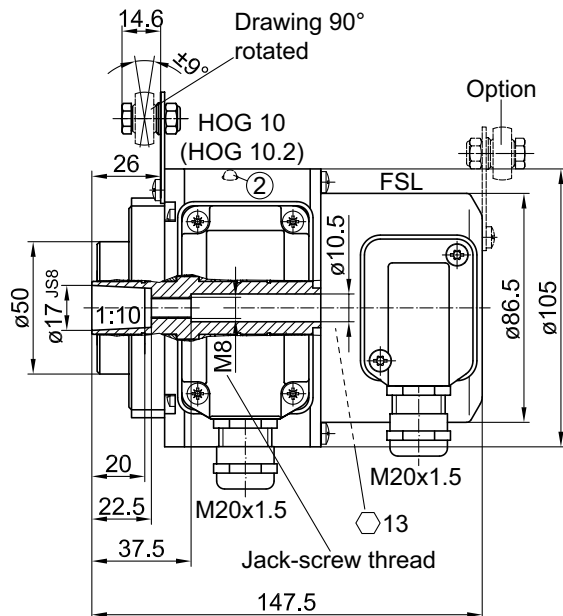
Dimensions

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)