

# Combination

Encoder with integrated electronic speed switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 11 + ESL 90



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## Features

- Offshore and salt water firm, high protection IP 67
- 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	$90^\circ \pm 20^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width $90^\circ$
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 67
Operating speed	$\leq 6000$ rpm
Range of switching speed (ns)	650...6000 rpm
Operating torque typ.	6 Ncm
Rotor moment of inertia	680 gcm <sup>2</sup>
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 CX (C5-M) 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

# Combination

## Encoder with integrated electronic speed switch

### Blind hollow shaft or cone shaft

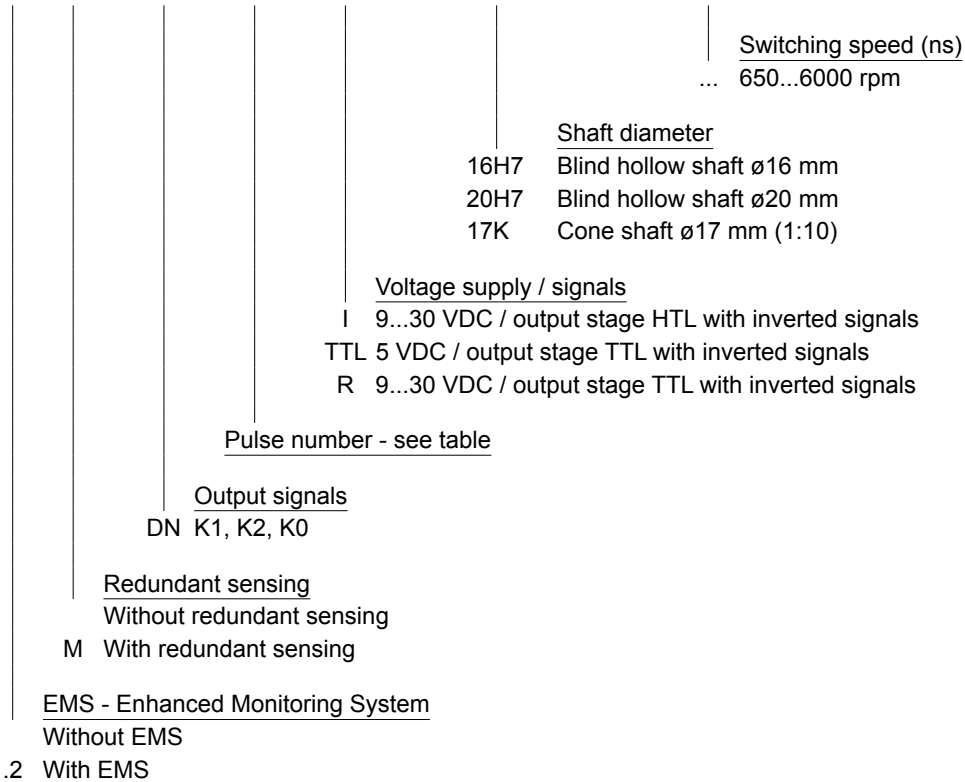
### 300...5000 pulses per revolution

**HOG 11 + ESL 90**

#### Part number

HOG11 

		DN				SR		+ ESL90		...
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#### 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

##### Mounting accessories

11077197	Mounting kit for torque arm size M6 and earthing strap
11077087	Mounting and dismantling set
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)

##### Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
11075880	Analyzer for encoders HENQ 1100 with a power pack

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Encoder with integrated electronic speed switch

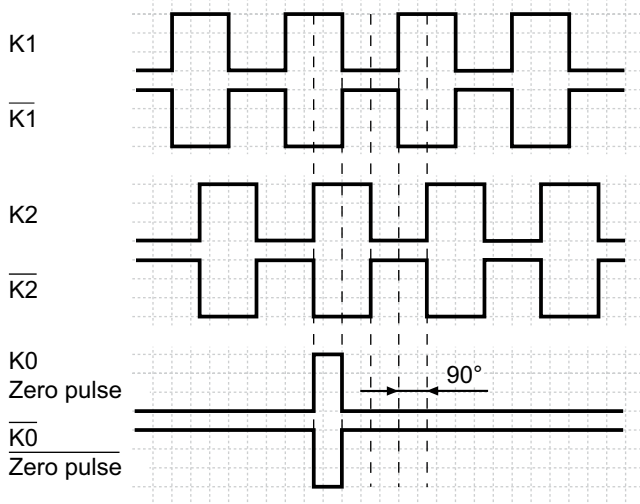
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## HOG 11 + ESL 90

### Output signals

At positive rotating direction



### Option EMS: LED status / Error output

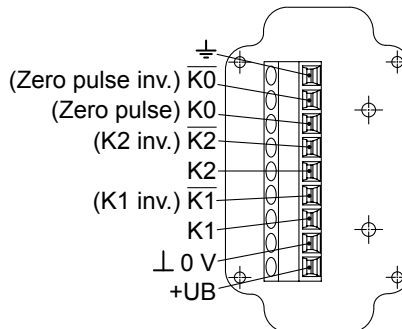
Flash light red*	Error of signal sequence, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output driver (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or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

\* Only at rotating device

### Terminal assignment

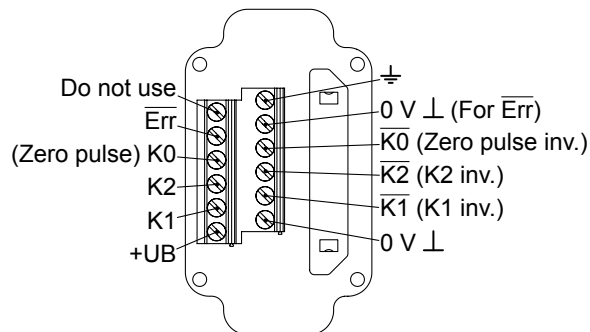
#### View A

Connecting terminal terminal box HOG 11



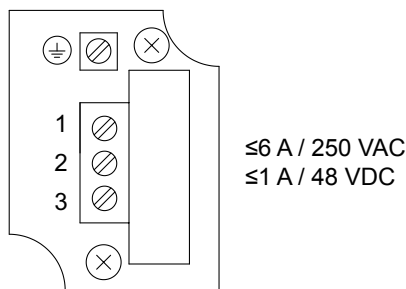
#### Option EMS: View A

Connecting terminal terminal box HOG 11.2



#### View B

Connecting terminal electronic speed switch ESL 90



# Combination

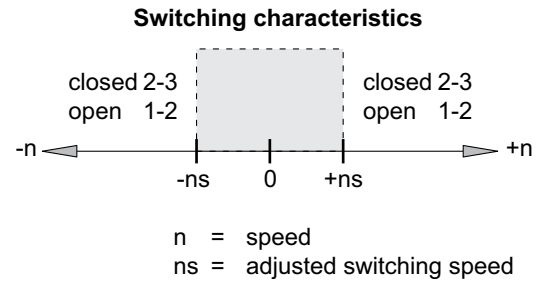
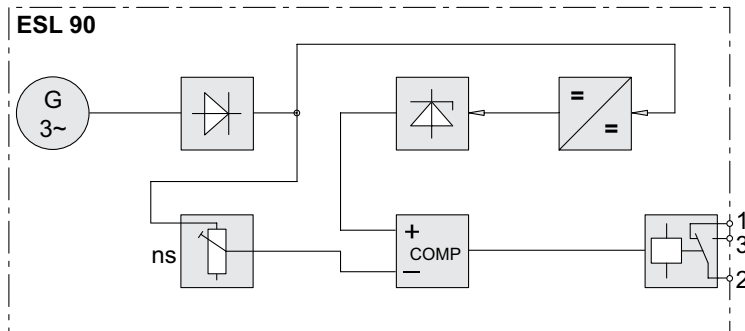
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## Block circuit diagram



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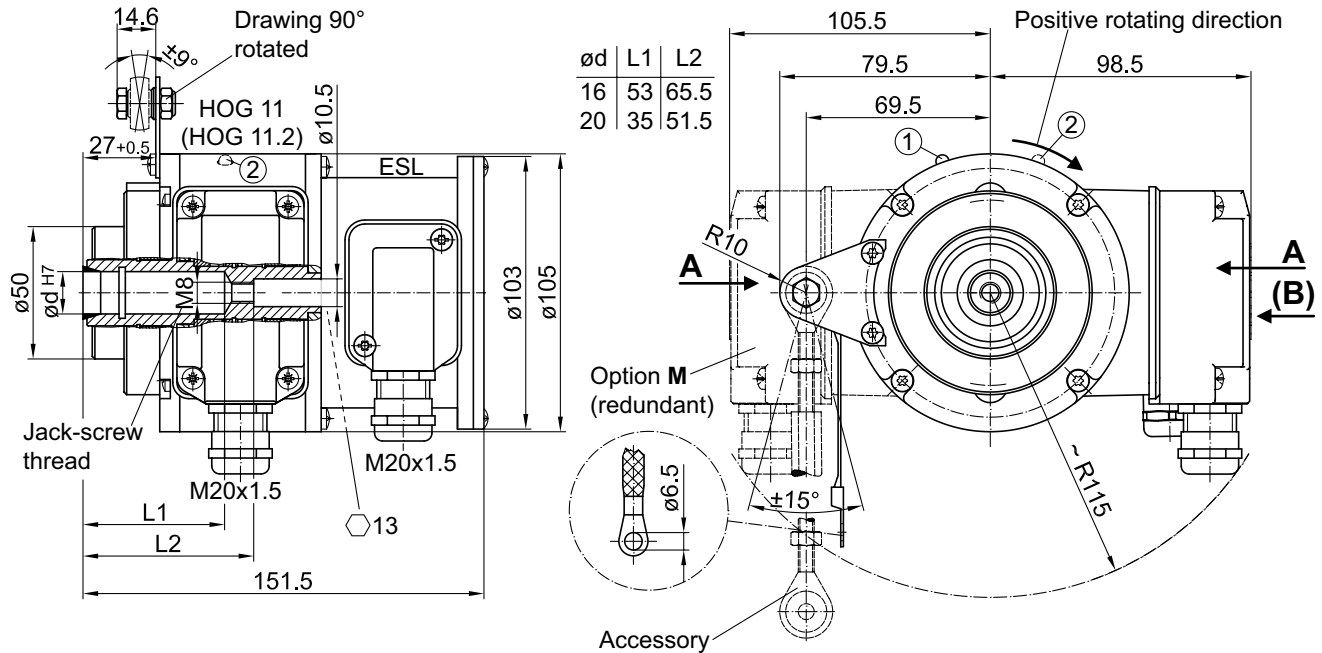
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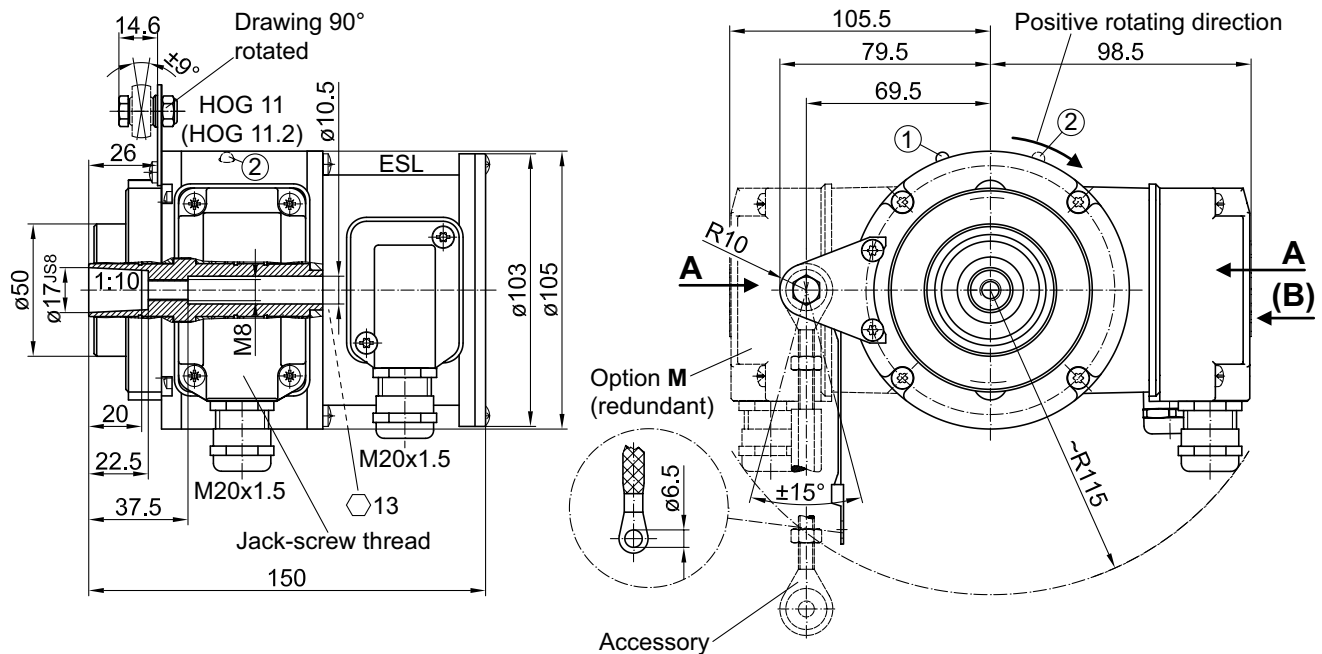
### Dimensions

#### 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)