

Combination

Encoder with integrated electronic speed switch

Blind hollow shaft or cone shaft

300...5000 pulses per revolution

HOG 11 + ESL



HOG 11 + ESL

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 lifetime
- Terminal boxes, turn by 180°

Optional

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

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 $\pm 5\%$ |
| Consumption w/o load | ≤ 100 mA |
| Pulses per revolution | 300...5000 |
| Phase shift | $90^\circ \pm 20^\circ$ |
| 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, TTL/RS422 |

Technical data - electrical ratings (speed switches)

| | |
|----------------------|---|
| Switching accuracy | $\pm 4\%$ (≤ 1500 rpm) $\pm 2\%$ (> 1500 rpm) |
| Switching hysteresis | $\approx 30\%$ of switching speed |
| Switching delay time | ≤ 40 ms |

HOG 11 + ESL 90

| | |
|---------------------------|---|
| Switching outputs | 1 output, speed control |
| Output switching capacity | ≤ 6 A / 250 VAC; ≤ 1 A / 48 VDC |
| Minimum switching current | 100 mA |

HOG 11 + ESL 93

| | |
|----------------------|--------------------------|
| Voltage supply | 12 VDC $\pm 10\%$ |
| Consumption w/o load | ≤ 5 mA |
| Switching outputs | 3 outputs, speed control |
| Current each output | 40 mA |

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 | ≤ 450 N axial, ≤ 600 N radial |
| Protection DIN EN 60529 | IP 67 |
| 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 Complies to ISO 12944-5:1998 Protective paint systems (C5-M) |
| Shaft insulation | 2.8 kV |
| Transmission length | ≤ 350 m at 100 kHz (HTL-P) ≤ 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 |

HOG 11 + ESL 90

| | |
|-------------------------------|-----------------|
| Operating speed | ≤ 6000 rpm |
| Range of switching speed (ns) | 650...6000 rpm |

HOG 11 + ESL 93

| | |
|-------------------------------|-------------------|
| Operating speed | ≤ 5000 rpm |
| Range of switching speed (ns) | 3x 200...5000 rpm |

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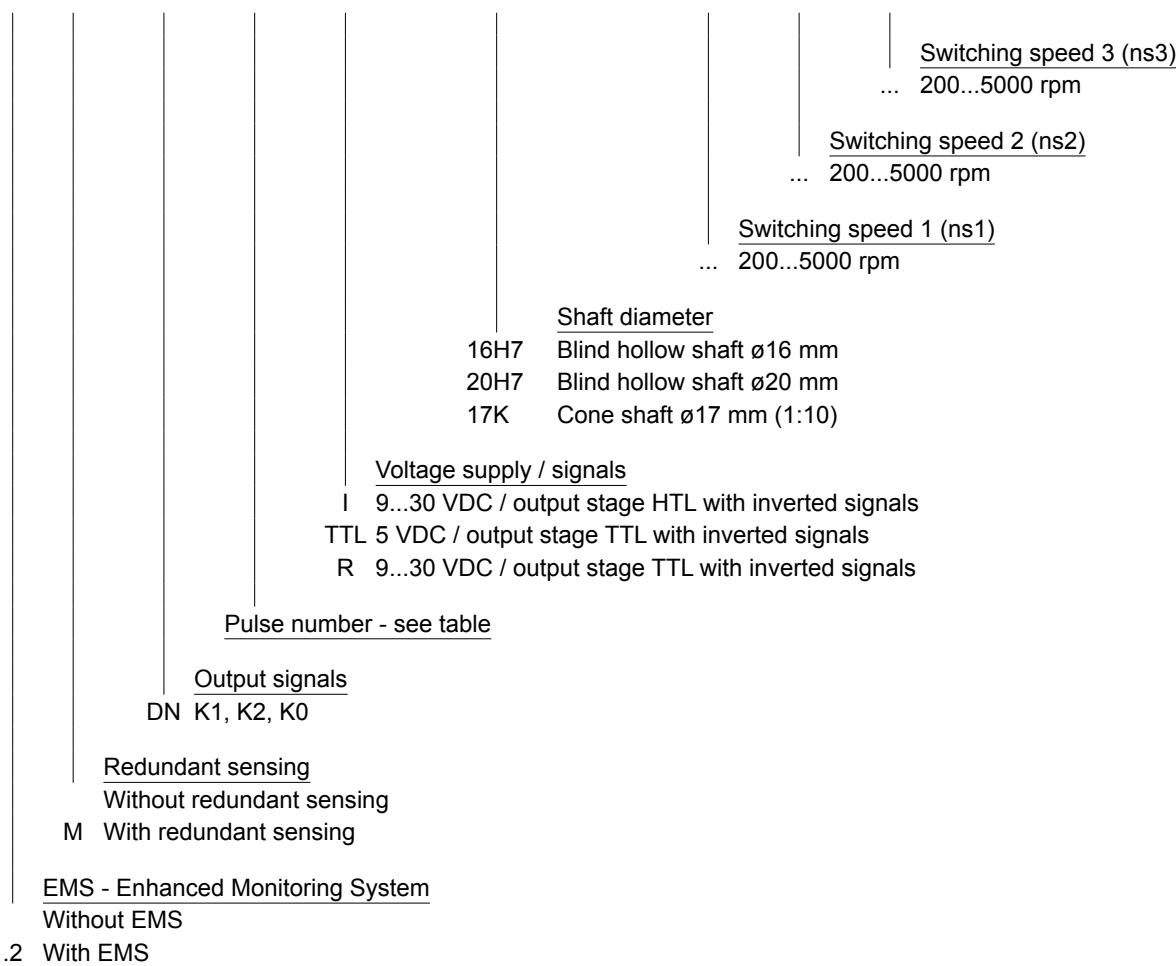
HOG 11 + ESL

Part number

Encoder with speed switch ESL 93

HOG11

| | | | | | | | | | | | | | | |
|--|--|----|--|--|--|----|--|---------|--|-----|--|-----|--|-----|
| | | DN | | | | SR | | + ESL93 | | ... | | ... | | ... |
|--|--|----|--|--|--|----|--|---------|--|-----|--|-----|--|-----|



Pulse number

| | | | |
|-----|------|------|------|
| 300 | 1000 | 2048 | 4096 |
| 500 | 1024 | 2500 | 5000 |
| 512 | 1200 | 3072 | |

Other pulse numbers on request.
Please indicate the exact switching rotation speeds
(permanent parameter defined at works).

Combination

Encoder with integrated electronic speed switch

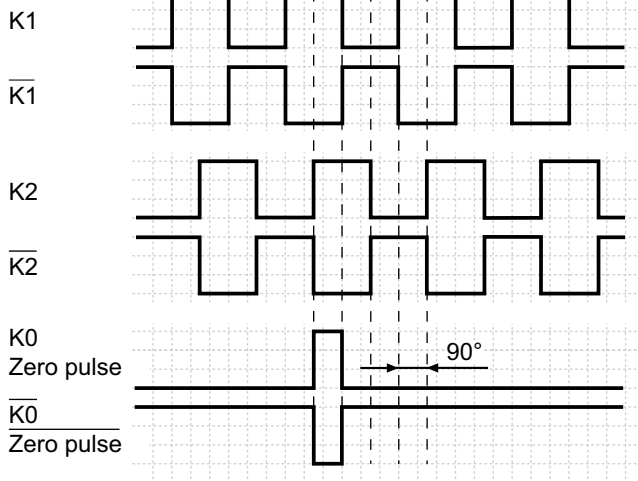
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HOG 11 + ESL

Output signals

At positive rotating direction



Option EMS: LED status / Error output

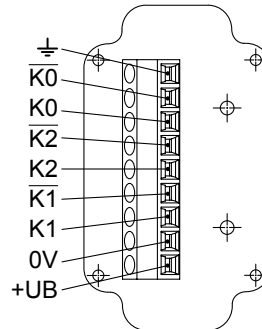
| | |
|-------------------|---|
| Flash light red* | Error of signal sequence, zero pulse or pulses (Error output = HIGH-LOW alternation) |
| Red | Overload output driver (Error output = LOW) |
| Flash light green | Encoder o.k., rotating (Error output = HIGH) |
| Green | Encoder o.k., stopped (Error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

* Only at rotating encoder

Terminal assignment

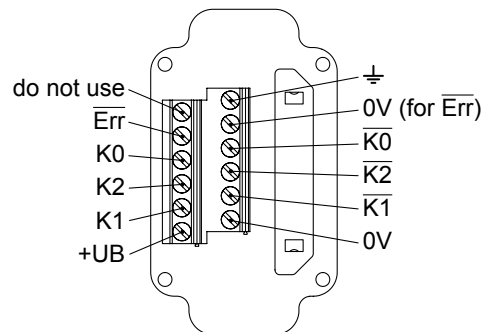
View A

Connecting terminal in terminal box HOG 11



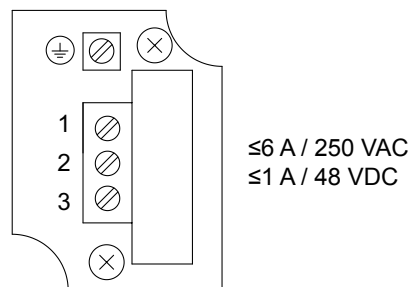
Option EMS: View A

Connecting terminal in terminal box HOG 11.2



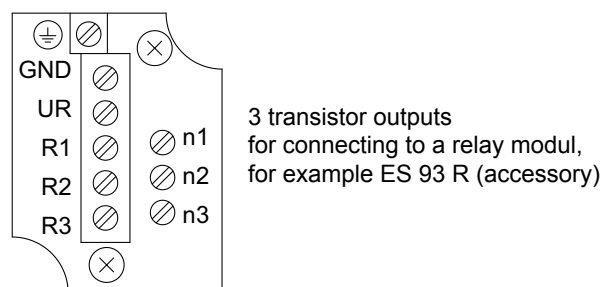
View B

Connecting terminal electronic speed switch ESL 90



View B

Connecting terminal electronic speed switch ESL 93



Combination

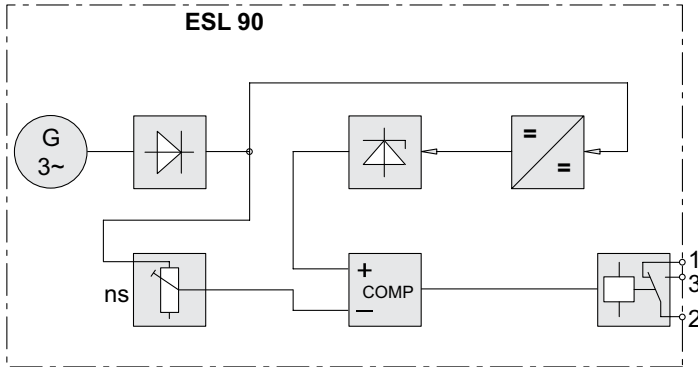
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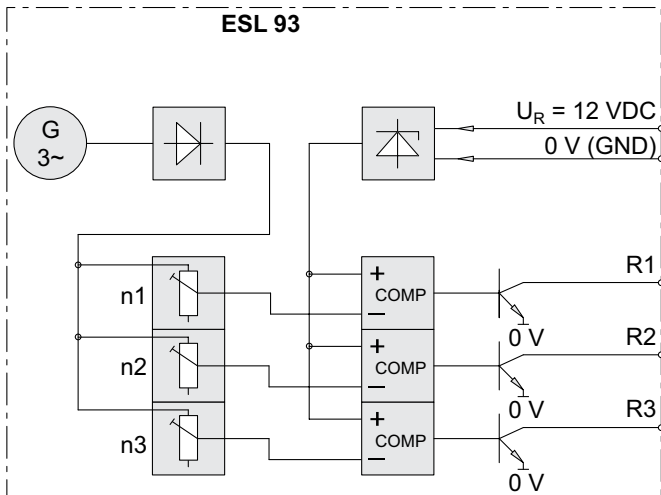
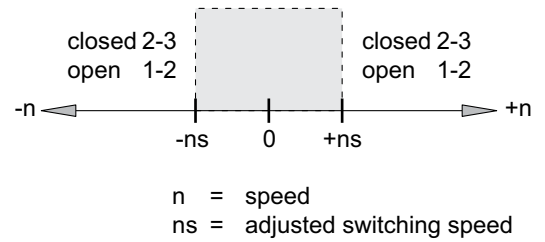
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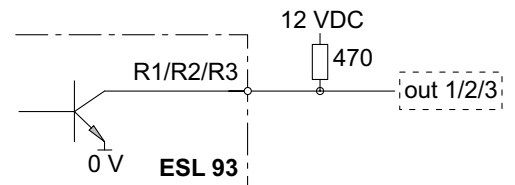
Block circuit diagram



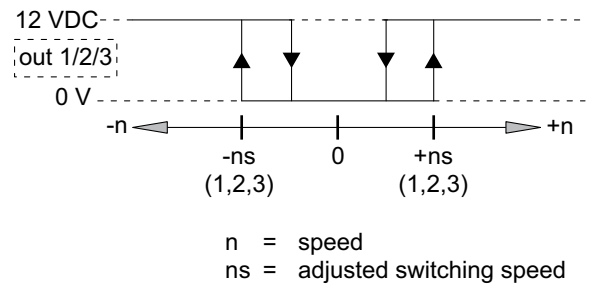
Switching characteristics



Recommended output circuit



Switching characteristics



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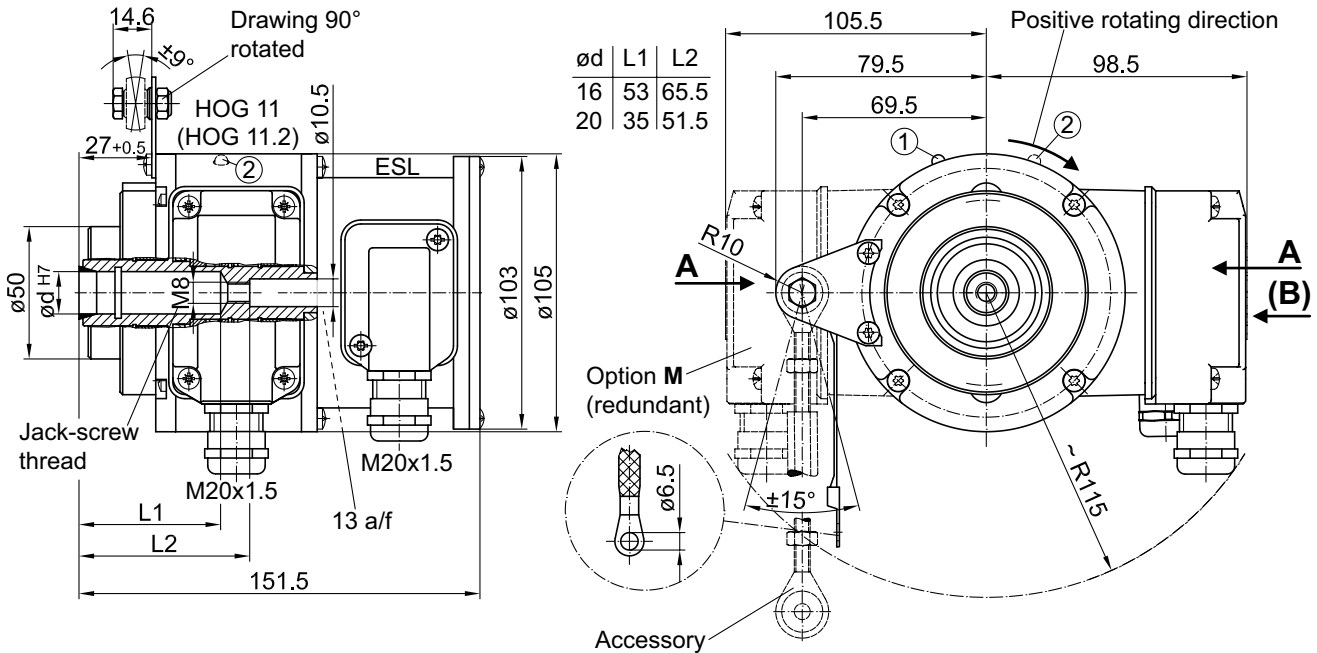
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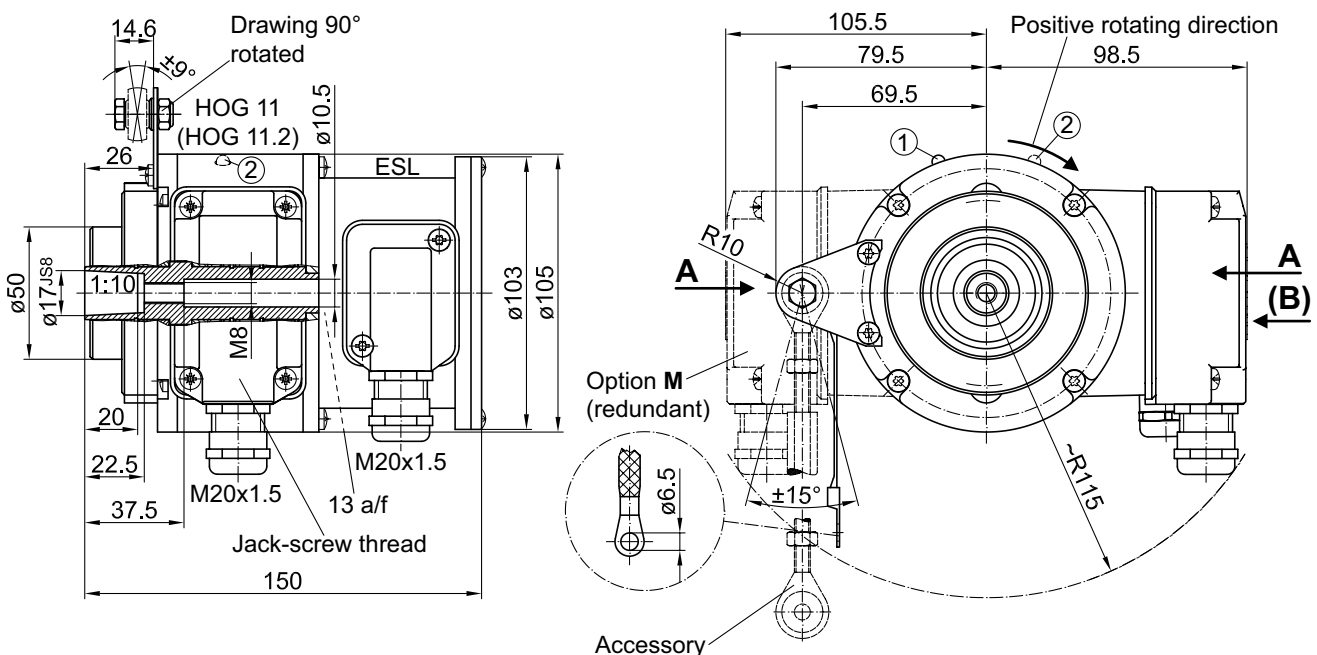
Dimensions

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



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

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



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