Baumer
Passion for Sensors

Incremental encoders

# HOG 10

Blind hollow shaft or cone shaft
300…5000 pulses per revolution

## Overview

- TTL output driver for cable length up to 550 m
- Very high resistance to shock and vibrations
- Hybrid bearing for extended service life
- Large terminal box, turn by 180° or axial terminal cover



HTL TTL® HUBNER BERLIN A Baumer Brand

## Technical data

### Technical data - electrical ratings

| | |
|---|---|
| Voltage supply | 9...30 VDC<br>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° |
| Sensing method | Optical |
| Output frequency | ≤120 kHz<br>≤300 kHz (on request) |
| Output signals | K1, K2, K0 + inverted<br>Error output (option EMS) |
| Output stages | HTL-P (power linedriver)<br>TTL/RS422 |
| Shaft insulation | Suitable up to 2.8 kV |
| Transmission length | ≤350 m at 100 kHz (HTL-P)<br>≤550 m at 100 kHz (TTL) |
| Interference immunity | EN 61000-6-2 |
| Emitted interference | EN 61000-6-3 |
| Approval | CE<br>UL approval / E217823 |

### Technical data - mechanical design

| | |
|---|---|
| Size (flange) | ø105 mm |
| Shaft type | ø12...20 mm (blind hollow shaft)<br>ø17 mm (cone shaft 1:10) |

### Technical data - mechanical design

| | |
|---|---|
| Admitted shaft load | ≤450 N axial<br>≤600 N radial |
| Protection DIN EN 60529 | IP 66 |
| Operating speed | ≤6000 rpm (mechanical) |
| Operating torque typ. | 6 Ncm |
| Rotor moment of inertia | 340 gcm² |
| Material | Housing: aluminium die-cast<br>Shaft: stainless steel |
| Operating temperature | -40...+100 °C<br>-25...+100 °C (>3072 pulses)<br>-50...+100 °C (optional) |
| Resistance | IEC 60068-2-6<br>Vibration 20 g, 10...2000 Hz<br>IEC 60068-2-27<br>Shock 300 g, 6 ms |
| Corrosion protection | IEC 60068-2-52 Salt mist<br>for ambient conditions C4 according to ISO 12944-2 |
| Explosion protection | II 3 G Ex nA IIC T4 Gc (gas)<br>II 3 D Ex tc IIIC T135°C Dc (dust) |
| Connection | Terminal box<br>Terminal cover<br>2x terminal box (with option M) |
| Weight approx. | 1,6 kg<br>1,8 kg (with option M) |

## Optional

- Function control with EMS
- Redundant sensing with two terminal boxes
- With heating up to -50°C
- With earthing brushes

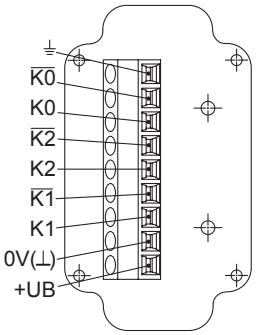
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2020-02-13

# HOG 10

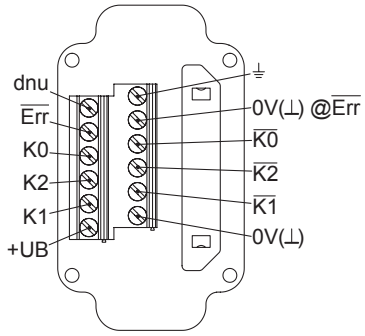
Blind hollow shaft or cone shaft
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## Terminal assignment

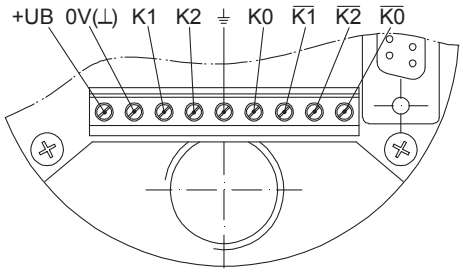
**View A** *(see dimension)*
Connecting terminal terminal box, radial




**Option EMS: View A** *(see dimension)*
Connecting terminal terminal box, radial

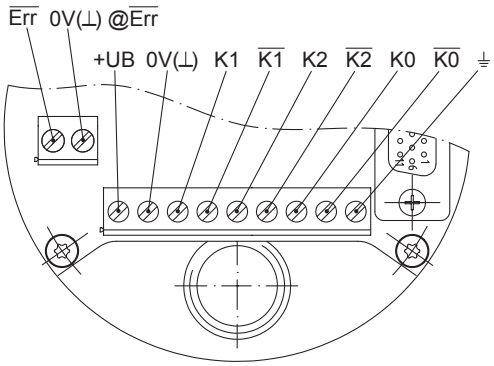



**View B** *(see dimension)*
Connecting terminal terminal cover, axial




## Terminal assignment

**Option EMS: View B** *(see dimension)*
Connecting terminal terminal cover, axial

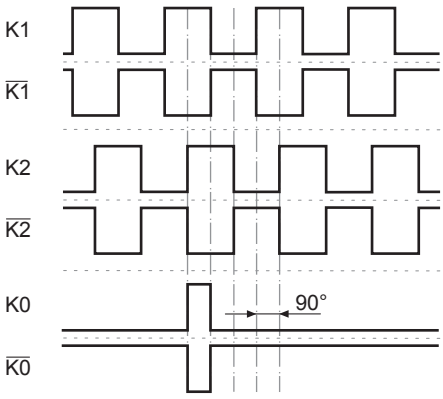



## Terminal significance

| | |
|---|---|
| +UB | Voltage supply |
| 0V (⊥) | Ground |
| ⏚ | Earth ground (housing) |
| K1 | Output signal channel 1 |
| $\overline{K1}$ | Output signal channel 1 inverted |
| K2 | Output signal channel 2 (offset by 90° to channel 1) |
| $\overline{K2}$ | Output signal channel 2 inverted |
| K0 | Zero pulse (reference signal) |
| $\overline{K0}$ | Zero pulse inverted |
| $\overline{Err}$ | Error output (option EMS) |
| dnu | Do not use |

## Output signals

**HTL/TTL**
At positive rotating direction *(see dimension)*




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| Option EMS (Enhanced Monitoring System): Status LED / error output | |
|---|---|
| Flash light red* | Error of signal sequenze, zero pulse or pulses (Error output = HIGH-LOW alternation) |
| Red | Overload output transistors (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) |

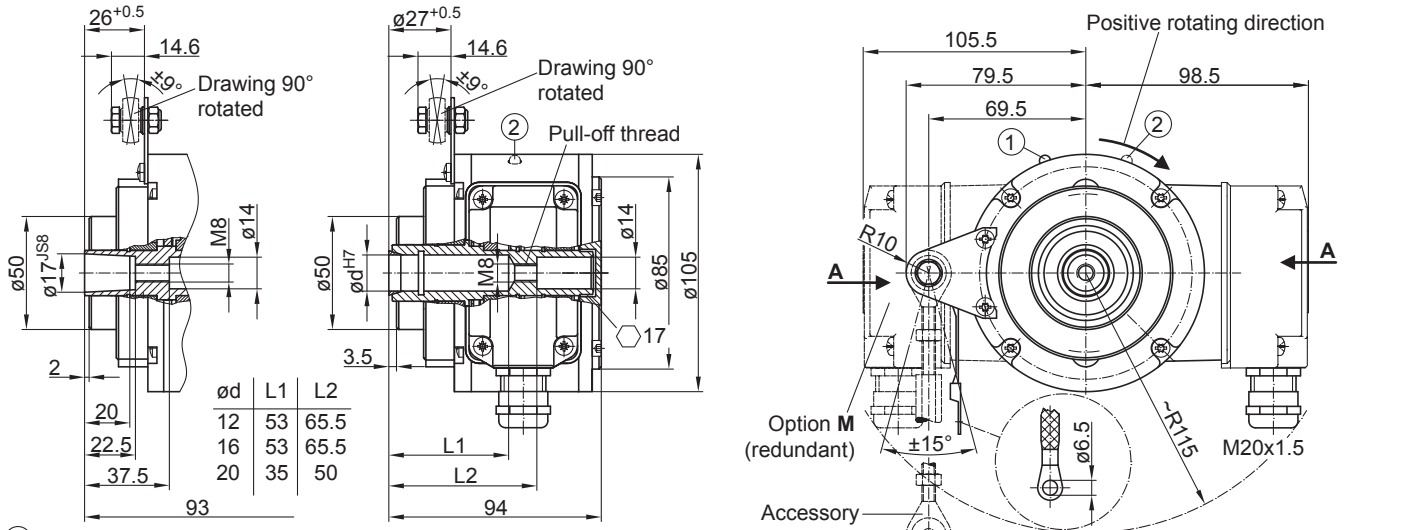
* Only at rotating device

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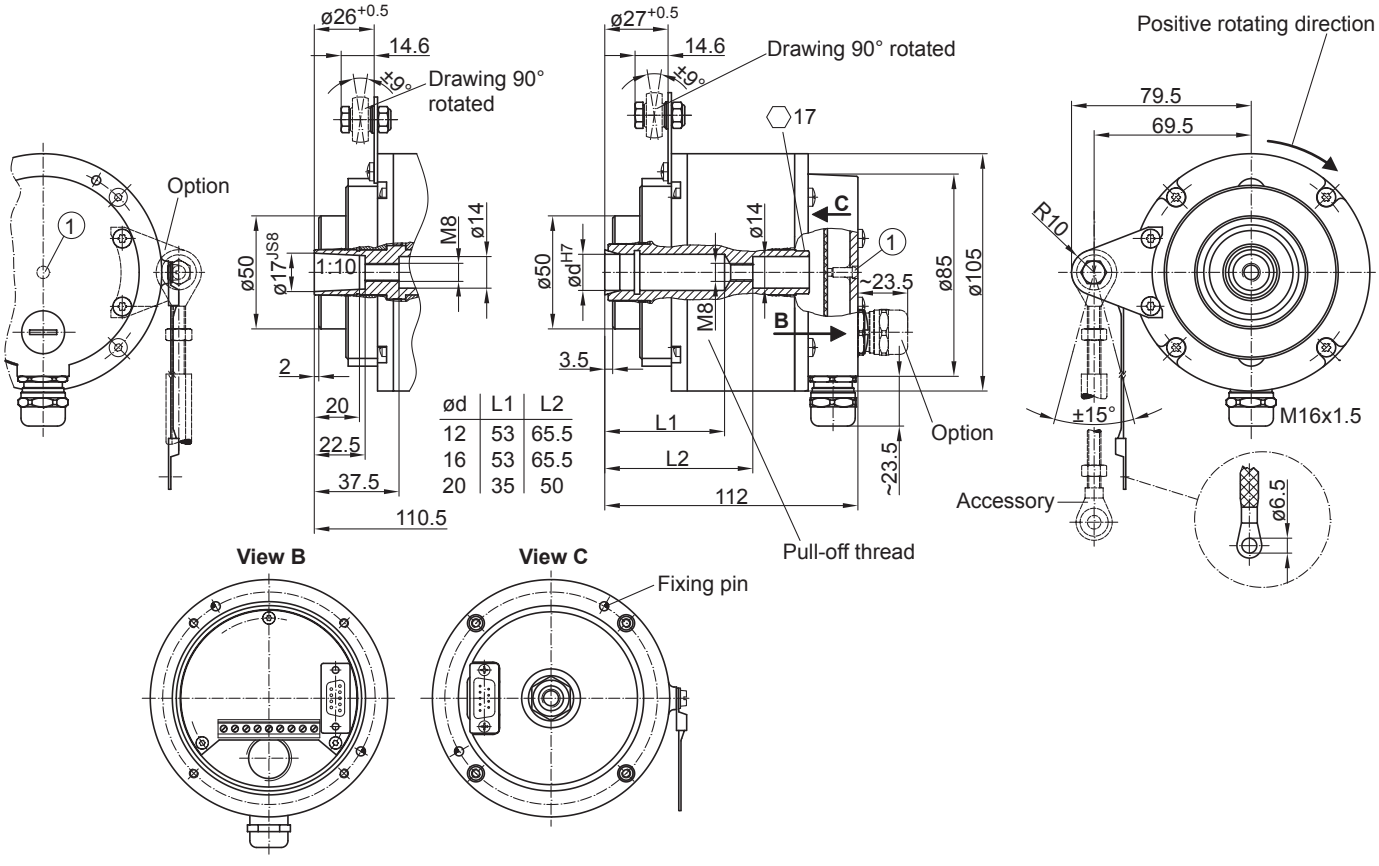
## Dimensions




| ød | L1 | L2 |
|---|---|---|
| 12 | 53 | 65.5 |
| 16 | 53 | 65.5 |
| 20 | 35 | 50 |

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

Version with radial terminal box




| ød | L1 | L2 |
|---|---|---|
| 12 | 53 | 65.5 |
| 16 | 53 | 65.5 |
| 20 | 35 | 50 |

① Status LED (option EMS)

Version with axial terminal cover

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## Ordering reference

| | HOG10 | ## | # | DN | #### | ### | ## | ###### | ###### |
|---|---|---|---|---|---|---|---|---|---|
| **Product** | | | | | | | | | |
| Incremental encoder | HOG10 | | | | | | | | |
| **EMS - Enhanced Monitoring System** | | | | | | | | | |
| Without EMS | | | | | | | | | |
| With EMS | | .2 | | | | | | | |
| **Redundant sensing** | | | | | | | | | |
| Without redundant sensing | | | | | | | | | |
| With redundant sensing | | | M | | | | | | |
| **Output signals** | | | | | | | | | |
| K1, K2, K0 | | | | DN | | | | | |
| **Pulse number(1)** | | | | | | | | | |
| 300 | | | | | 300 | | | | |
| 500 | | | | | 500 | | | | |
| 512 | | | | | 512 | | | | |
| 1000 | | | | | 1000 | | | | |
| 1024 | | | | | 1024 | | | | |
| 1200 | | | | | 1200 | | | | |
| 2048 | | | | | 2048 | | | | |
| 2500 | | | | | 2500 | | | | |
| 3072 | | | | | 3072 | | | | |
| 4096 | | | | | 4096 | | | | |
| 5000 | | | | | 5000 | | | | |
| **Voltage supply / output stage** | | | | | | | | | |
| 9...30 VDC / output stage HTL with inverted signals | | | | | | I | | | |
| 5 VDC / output stage TTL with inverted signals | | | | | | TTL | | | |
| 9...30 VDC / output stage TTL with inverted signals | | | | | | R | | | |
| **Sealing system** | | | | | | | | | |
| Dust protection | | | | | | | LR | | |
| Damp protection | | | | | | | SR | | |
| **Shaft diameter** | | | | | | | | | |
| Blind hollow shaft ø12 mm | | | | | | | | 12H7 | |
| Blind hollow shaft ø16 mm | | | | | | | | 16H7 | |
| Blind hollow shaft ø20 mm | | | | | | | | 20H7 | |
| Cone shaft ø17 mm (1:10) | | | | | | | | 17K | |
| **Connection** | | | | | | | | | |
| Terminal box, radial | | | | | | | | | KLK |
| Terminal cover, axial (not for option M redundant) | | | | | | | | | KLK-AX |

(1) Other pulse numbers on request.

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## Accessories

### Mounting accessories

| | |
|---|---|
| 11043628 | Torque arm M6, length 67...70 mm |
| 11004078 | Torque arm M6, length 120...130 mm (≥71 mm) |
| 11002915 | Torque arm M6, length 425...460 mm (≥131 mm) |
| 11054917 | Torque arm M6 insulated, length 67...70 mm |
| 11072795 | Torque arm M6 insulated, length 120...130 mm (≥71 mm) |
| 11082677 | Torque arm M6 insulated, length 425...460 mm (≥131 mm) |
| 11054918 | Torque arm M6 stainless, length 67...70 mm |
| 11072787 | Torque arm M6 stainless, length 120...130 mm (≥71 mm) |
| 11072737 | Torque arm M6 stainless, length 425...460 mm (≥131 mm) |
| 11077197 | Mounting kit for torque arm size M6 and earthing strap |
| 11077087 | Mounting and dismounting set |

### Connectors and cables

| | |
|---|---|
| | Sensor cable for encoders HEK 8 |

### Diagnostic accessories

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

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