

## HOGS 100 S

SIL2 approval

Blind hollow shaft ø16 mm or cone shaft ø17 mm (1:10) / 1024...5000 sinewave cycles per turn

### Overview

- For safety-relevant applications according SIL2
- Blind hollow shaft ø16 mm or cone shaft ø17 mm (1:10)
- Up to 5000 sinewaves cycles per turn
- Low harmonic content (patented LowHarmonics technology)
- Top-quality SinCos output-signals
- Protection against inductive shaft current
- Large terminal box, turn by 180° or axial terminal cover



### Technical data

#### Technical data - electrical ratings

|                                |                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------|
| Voltage supply                 | 5 VDC ±10 %<br>7...30 VDC                                                                    |
| Consumption w/o load           | ≤90 mA                                                                                       |
| Sinewave cycles per revolution | 1024 ... 5000                                                                                |
| Phase shift                    | 90 °                                                                                         |
| Reference signal               | Zero pulse, width 90°                                                                        |
| Sensing method                 | Optical                                                                                      |
| Output signals                 | K1, K2, K0 + inverted                                                                        |
| Output stages                  | SinCos 1 Vpp                                                                                 |
| Difference of SinCos amplitude | ≤20 mV                                                                                       |
| Harmonics typ.                 | -50 dB                                                                                       |
| DC offset                      | ≤20 mV                                                                                       |
| Bandwidth                      | 250 kHz (-3 dB)                                                                              |
| Function safety                | SS1, SS2, SOS, SLS, SDI, SLI according to EN 61800-5-2:2007                                  |
| Safety operating figures       | Service life: 20 a PFH: 1,75 10 <sup>-7</sup> 1/h                                            |
| Interference immunity          | EN 61000-6-2<br>EN 61326-3-1                                                                 |
| Emitted interference           | EN 61000-6-3                                                                                 |
| EMC requirements               | EN 61800-3                                                                                   |
| Approval                       | CE<br>PL d / SIL2 approval according to EN ISO 13849-1 and EN 62061<br>UL approval / E217823 |

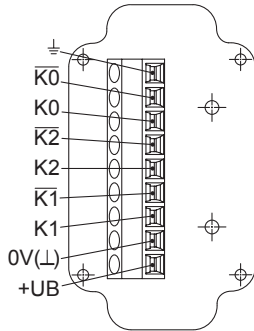
#### Technical data - mechanical design

|                         |                                                                                               |
|-------------------------|-----------------------------------------------------------------------------------------------|
| Size (flange)           | ø105 mm                                                                                       |
| Shaft type              | ø16 mm (blind hollow shaft)<br>ø17 mm (cone shaft 1:10)                                       |
| Admitted shaft load     | ≤250 N axial<br>≤400 N radial                                                                 |
| Motor shaft tolerance   | 0.2 mm axial (≤6000 rpm)<br>0.03 mm axial (>6000 rpm)                                         |
| Protection EN 60529     | IP 66                                                                                         |
| Operating speed         | ≤10000 rpm (mechanical)                                                                       |
| Operating torque typ.   | 6 Ncm                                                                                         |
| Rotor moment of inertia | 180 gcm <sup>2</sup>                                                                          |
| Material                | Housing: aluminium die-cast<br>Shaft: stainless steel                                         |
| Operating temperature   | -20...+85 °C                                                                                  |
| Resistance              | IEC 60068-2-6<br>Vibration 10 g, 10-2000 Hz<br>IEC 60068-2-27<br>Shock 100 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 ec IIC T4 Gc (gas)<br>II 3 D Ex tc IIIC T135°C Dc (dust)<br>(only with option ATEX) |
| Connection              | Terminal box<br>Terminal cover                                                                |
| Weight approx.          | 1.8 kg                                                                                        |

## Terminal assignment

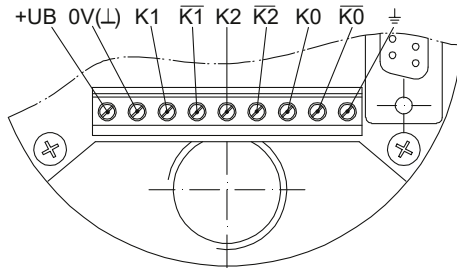
### View A (see dimension)

Connecting terminal terminal box, radial



### View B (see dimension)

Connecting terminal terminal cover, axial



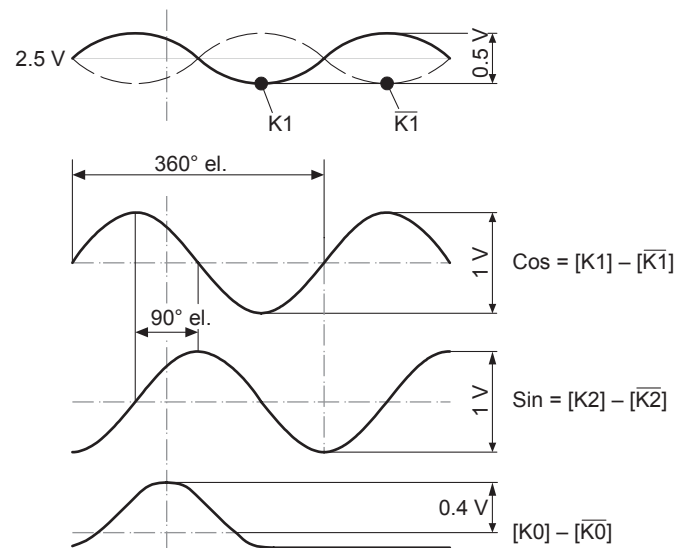
## Terminal significance

|                 |                                                      |
|-----------------|------------------------------------------------------|
| +UB             | Voltage supply                                       |
| 0V ( $\perp$ )  | Ground                                               |
| $\perp$         | 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                                  |

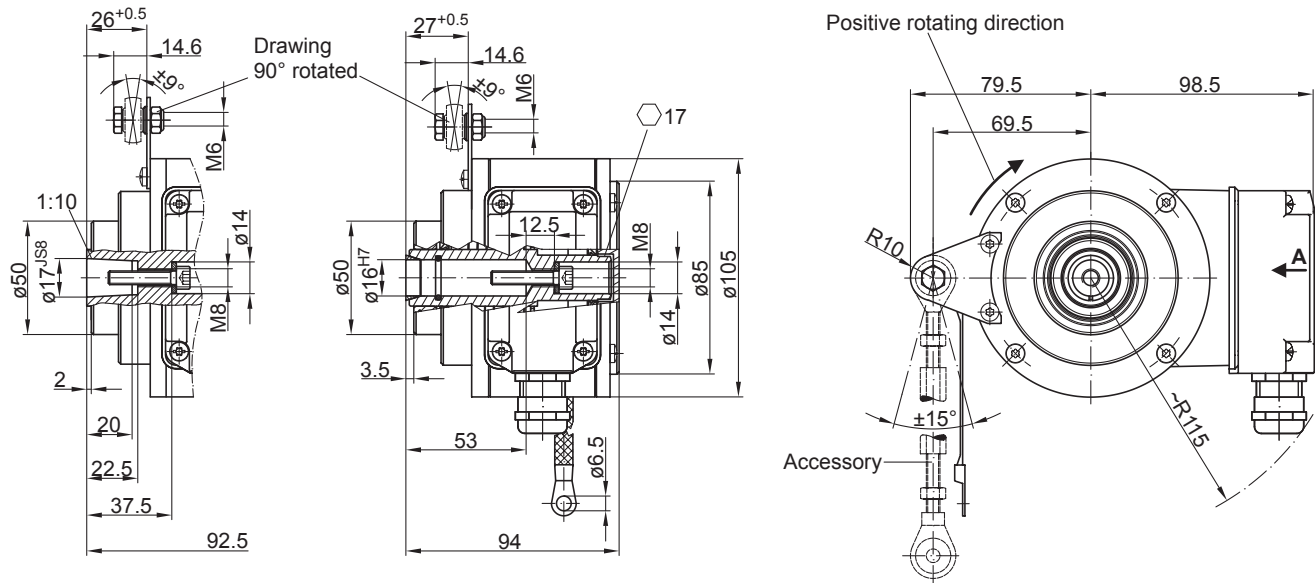
## Output signals

### SinCos

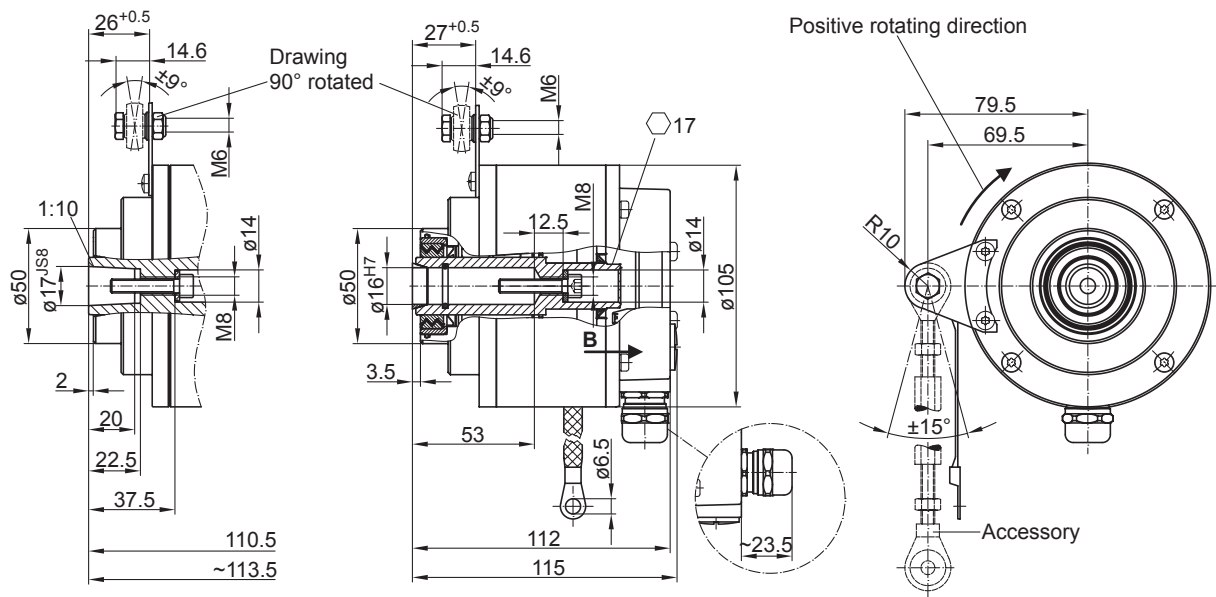
At positive rotating direction (see dimension)



## Dimensions



Version with radial terminal box



Version with axial terminal cover

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## Ordering reference

|                                       |                                              |   |   |   |   |   |   |   |   |   |      |   |       |
|---------------------------------------|----------------------------------------------|---|---|---|---|---|---|---|---|---|------|---|-------|
|                                       | <b>HOGS100S</b>                              | - | B | # | 6 | . | # | # | # | . | #### | . | 1     |
| <b>Product</b>                        | Sine encoder                                 |   |   |   |   |   |   |   |   |   |      |   |       |
|                                       |                                              |   |   |   |   |   |   |   |   |   |      |   |       |
| <b>Product</b>                        | Sine encoder                                 |   |   |   |   |   |   |   |   |   |      |   |       |
|                                       |                                              |   |   |   |   |   |   |   |   |   |      |   |       |
| <b>Shaft type</b>                     | Blind hollow/cone shaft                      |   | B |   |   |   |   |   |   |   |      |   |       |
| <b>Sealing system</b>                 | Dust protection = LR                         |   |   |   | 6 |   |   |   |   |   |      |   |       |
|                                       | Damp protection = SR                         |   |   |   | 7 |   |   |   |   |   |      |   |       |
| <b>Protection</b>                     | IP 66                                        |   |   |   |   | 6 |   |   |   |   |      |   |       |
| <b>Shaft diameter</b>                 | ø16 mm, central screw                        |   |   |   |   |   |   |   | 6 |   |      |   |       |
|                                       | ø17 mm cone 1:10, central screw              |   |   |   |   |   |   |   | 7 |   |      |   |       |
| <b>Connection</b>                     | Terminal cover, axial                        |   |   |   |   |   |   |   |   |   | 1    |   |       |
|                                       | 1x terminal box with cable gland M20, radial |   |   |   |   |   |   |   |   |   | 2    |   |       |
| <b>Voltage supply / output stages</b> | 7...30 VDC, SinCos (1 Vpp), 6 channel        |   |   |   |   |   |   |   |   |   |      | 5 |       |
|                                       | 5 VDC ±10 %, SinCos (1 Vpp), 6 channel       |   |   |   |   |   |   |   |   |   |      | 6 |       |
| <b>Sinewave cycles</b>                | 01024                                        |   |   |   |   |   |   |   |   |   |      |   | 01024 |
|                                       | 02048                                        |   |   |   |   |   |   |   |   |   |      |   | 02048 |
|                                       | 05000                                        |   |   |   |   |   |   |   |   |   |      |   | 05000 |
| <b>Operating temperature</b>          | -20...+85 °C                                 |   |   |   |   |   |   |   |   |   |      |   | 1     |

## 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) |