Combination

Encoder with integrated programmable, digital speed switch
Blind hollow shaft ø16 mm
512…2500 pulses per revolution

HOG 86 + DSL

HOG 86 + DSL - picture similar

Features

- **Robust, compact housing**
- **Hybrid bearing for extended service life**
- **3 switching outputs speed controlled (independent transistor outputs)**
- **Freely programmable on and off switching speed**
- **Programming via included software (RS485 interface)**
- **Logic level HTL or TTL**

Optional

- **Relay modul DS 93 R**

Technical data - electrical ratings

Voltage supply	15...30 VDC
Consumption w/o load	≤200 mA
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE

Technical data - electrical ratings (encoder)

Pulses per revolution	512...2500
Phase shift	90° ±20°
Duty cycle	45...55 %
Reference signal	Zero pulse, width 90°
Output frequency	≤120 kHz
Output signals	K1, K2, K0 + inverted
Output stages	HTL-P (power linedriver) TTL/RS422
Sensing method	Optical
Shaft insulation	2.8 kV
Transmission length	≤350 m at 100 kHz (HTL-P) ≤550 m at 100 kHz (TTL)

Technical data - electrical ratings (speed switches)

Interface	RS485
Switching accuracy	±2 % (or Digit)
Switching outputs	3 outputs, speed control
Output switching capacity	12 VDC; ≤40 mA
Switching delay time	≤40 ms

Technical data - mechanical design

Size (flange)	ø99 mm
Shaft type	ø16 mm (blind hollow shaft)
Admitted shaft load	≤350 N axial ≤450 N radial
Protection DIN EN 60529	IP 66
Speed (n)	≤6000 rpm
Range of switching speed (ns)	Pulses = 512: ±16...6000 rpm Pulses = 1024: ±8...6000 rpm Pulses = 2048: ±4...3500 rpm Pulses = 2500: ±3...2900 rpm
Operating torque	≤6 Ncm
Rotor moment of inertia	160 gcm²
Motor shaft tolerance	±0.2 mm radial
Materials	Housing: aluminium, coated Shaft: stainless steel
Operating temperature	-30...+85 °C
Resistance	IEC 60068-2-6 Vibration 15 g, 10-2000 Hz IEC 60068-2-27 Shock 250 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
Connection	2x terminal box
Weight approx.	1.4 kg

Combination

Encoder with integrated programmable, digital speed switch
Blind hollow shaft ø16 mm
512…2500 pulses per revolution

HOG 86 + DSL

Part number

HOG86	T	H	6		DN					+ DSL

Voltage supply / signals
- I 9...30 VDC / output stage HTL with inverted signals
- T 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

Shaft diameter
- 6 Blind hollow shaft ø16 mm, fit H7

Insulation
- H Hybrid bearing

Connection
- T 2x terminal boxes, radial

Pulse number

512	1024	2048	2500

Other pulse numbers on request.

Accessories

Connectors and cables	
HEK 8	Sensor cable for encoders
11064248	USB → RS485 converter
11117345	USB → RS485 converter with connecting cable for DSL
Mounting accessories	
11077087	Mounting and dismounting set
11071906	Mounting kit earthing strap
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)
11071850	Support plate mounting kit R63 for torque arm size M6
11082676	Support plate mounting kit R69 for torque arm size M6
11072076	Screw mounting kit for torque arm size M6
11071904	Mounting kit for torque arm size M6
Diagnostic accessories	
11075858	Analyzer for encoders HENQ 1100
11075880	Analyzer for encoders HENQ 1100 with a power pack
Relay module	
11016072	Relay modul DS 93 R

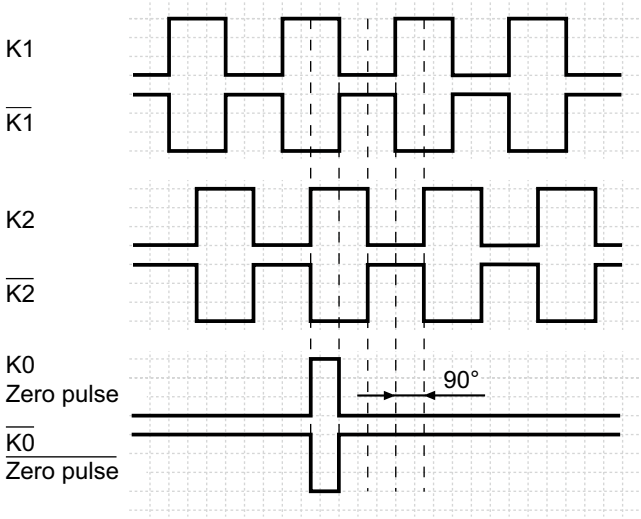
Combination

Encoder with integrated programmable, digital speed switch
Blind hollow shaft ø16 mm
512…2500 pulses per revolution

HOG 86 + DSL

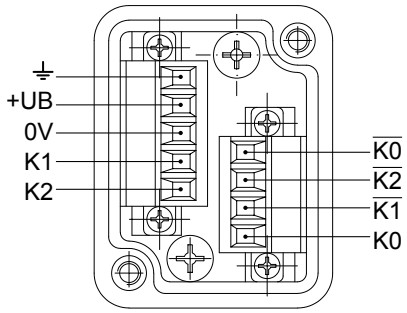
Output signals

At positive rotating direction

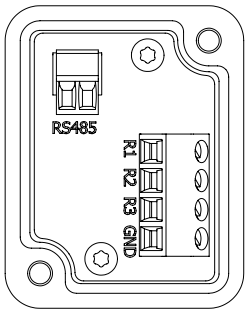


Terminal assignment

View A
Connecting terminal in terminal box HOG 86



View B
Connecting terminal in terminal box digital speed switch DSL



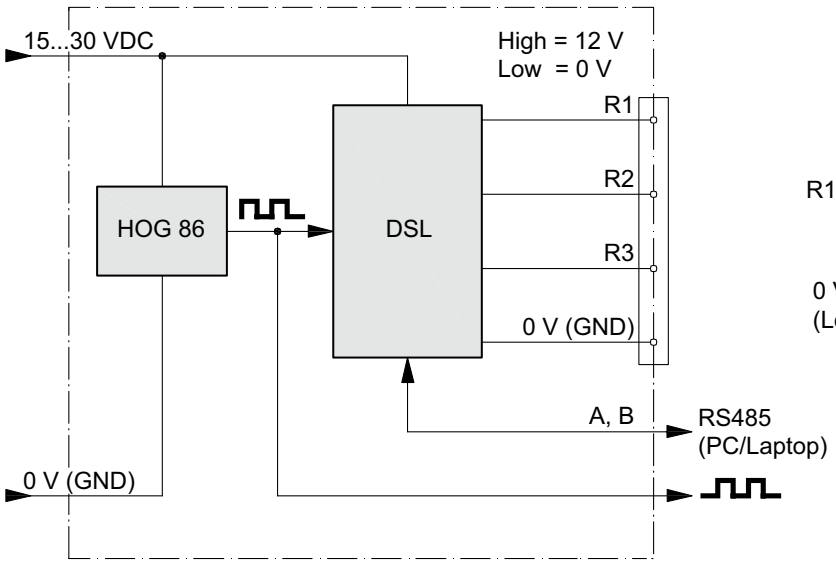
Terminal significance

Incremental	
+UB	Voltage supply (for the combination)
⊥; ⏚; GND; 0 V	Ground (for the signals)
⏚; ⏚	Earth ground (chassis)
K1; A; A+	Output signal channel 1
$\overline{K1}$; $\overline{A}$; A-	Output signal channel 1 inverted
K2; B; B+	Output signal channel 2 (offset by 90° to channel 1)
$\overline{K2}$; $\overline{B}$; B-	Output signal channel 2 (offset by 90° to channel 1) inverted
K0; C; R; R+	Zero pulse (reference signal)
$\overline{K0}$; $\overline{C}$; $\overline{R}$; R-	Zero pulse (reference signal) inverted

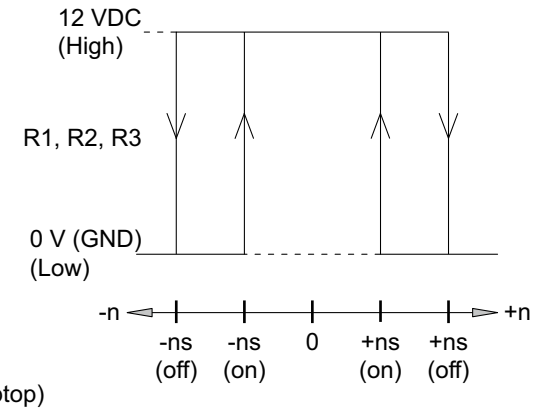
Speed switch DSL	
R1*	Transistor switching output 1, individually adjustable switching speed, High (12 V), Low (0 V), max. 20 mA
R2*	Transistor switching output 2, individually adjustable switching speed, High (12 V), Low (0 V), max. 20 mA
R3*	Transistor switching output 3, individually adjustable switching speed, High (12 V), Low (0 V), max. 20 mA
GND*	Ground connection
RS 485	Interface for PC or Laptop (adapter required). Programming of the DSL via the included software.

* Connection to relay module possible, for example DS 93 R (accessory)

Block circuit diagram



Switching characteristics



n = speed
ns (on) = adjusted switching on speed
ns (off) = adjusted switching off speed

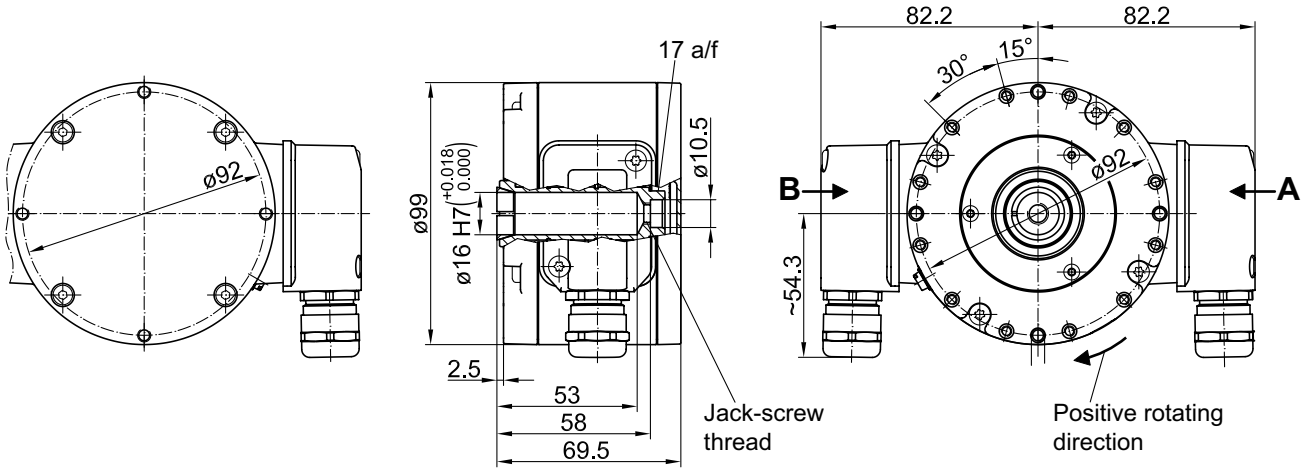
Combination

Encoder with integrated programmable, digital speed switch
Blind hollow shaft ø16 mm
512…2500 pulses per revolution

HOG 86 + DSL

Dimensions

Blind hollow shaft



Mounting possibilities