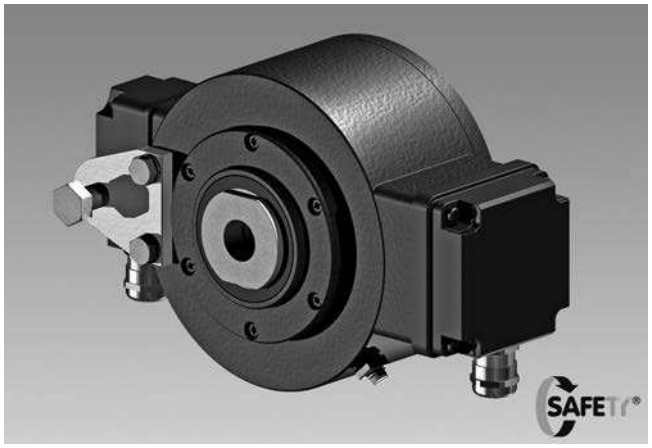
Combination

Encoder with integrated programmable, digital speed switch
Through hollow shaft ø20...50 mm
512...2500 pulses per revolution

HOG 16 + DSL



HOG 16 + DSL

Features

- **Freely programmable on and off switching speed**
- **Programming via included software (RS485 interface)**
- **Logic level HTL or TTL**
- **Through hollow shaft ø20...50 mm**
- **DSL.R: 3 outputs speed controlled; DSL.E: 2 outputs speed controlled and 1 control output**

Optional

- **Relay module DS 93 R (DSL.R version only)**
- **Redundant sensing (option M)**
- **Earthing brushes**

Technical data - electrical ratings

Consumption w/o load	≤200 mA
Sensing method	Optical
HOG 16 + DSL.E	
Voltage supply	9...30 VDC
HOG 16 + DSL.R	
Voltage supply	15...30 VDC

Technical data - electrical ratings (encoder)

Pulses per revolution	512...2500
Phase shift	90° ±20°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90°
Output frequency	≤120 kHz
Output signals	K1, K2, K0 + inverted
Output stages	HTL TTL/RS422

Technical data - electrical ratings (speed switches)

Interface	RS485
Switching accuracy	±2 % (Digit)
Switching delay time	≤40 ms
HOG 16 + DSL.E	
Switching outputs	2 outputs, speed control 1 control output
Output switching capacity	5...230 VAC/VDC; 5...250 mA
HOG 16 + DSL.R	
Switching outputs	3 outputs, speed control
Output switching capacity	12 VDC; ≤40 mA

Technical data - mechanical design

Size (flange)	ø158 mm
Shaft type	ø20...50 mm (through hollow shaft)
Shaft loading	≤450 N axial ≤600 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	≤15 Ncm
Rotor moment of inertia	4.9 kgcm²
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	-20...+85 °C
Resistance	IEC 60068-2-6 Vibration 15 g, 10-2000 Hz IEC 60068-2-27 Shock 300 g, 6 ms
Connection	2x terminal box 3x terminal box (with option M)
Weight approx.	4 kg, 5 kg (with option M)
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE

26/8/2014

Combination

Encoder with integrated programmable, digital speed switch
Through hollow shaft ø20...50 mm
512...2500 pulses per revolution

HOG 16 + DSL

Part number

Encoder with digital speed switch DSL.E

HOG16		DN				+DSL.E

Shaft diameter
- 20H7 Through hollow shaft ø20 mm
- 25H7 Through hollow shaft ø25 mm
- 30H7 Through hollow shaft ø30 mm
- 50H7 Through hollow shaft ø50 mm

Incremental output
- I Output circuit HTL with inverted signals
- R Output circuit TTL with inverted signals

Pulse number - see table

Output signals
- DN K1, K2, K0 + inverted

Redundant sensing
- Without redundant sensing
- M With redundant sensing

Encoder with digital speed switch DSL.R

HOG16		DN				+DSL.R

Shaft diameter
- 20H7 Through hollow shaft ø20 mm
- 25H7 Through hollow shaft ø25 mm
- 30H7 Through hollow shaft ø30 mm
- 50H7 Through hollow shaft ø50 mm

Incremental output
- I Output circuit HTL with inverted signals
- R Output circuit TTL with inverted signals

Pulse number - see table

Output signals
- DN K1, K2, K0 + inverted

Redundant sensing
- Without redundant sensing
- M With redundant sensing

Pulse number

512	1024	2048	2500

Accessories

Adapter USB → RS485

Connectors and cables

HEK 8	Sensor cable for encoders

Mounting accessories

DMS 12	Torque arm size M12
11069336	Mounting kit for torque arm size M12 and an earthing strap

Diagnostic accessories

HENQ 1100	Analyzer for encoders

Relay module for HOG 16 + DSL.R

DS 93 R	Relay modul

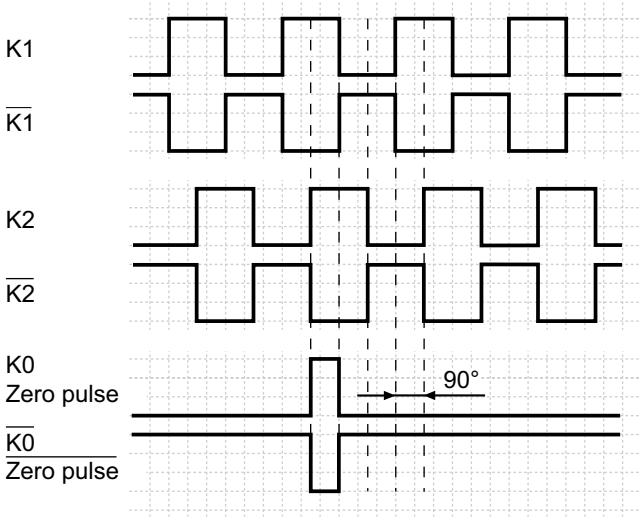
Combination

Encoder with integrated programmable, digital speed switch
Through hollow shaft ø20...50 mm
512...2500 pulses per revolution

HOG 16 + DSL

Output signals

At positive rotating direction

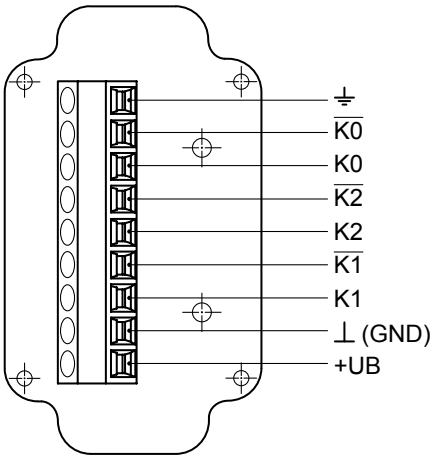


Terminal significance

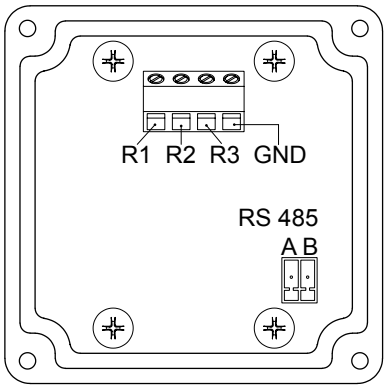
Speed switch version DSL.R	
R1*	Transistor switching output 1, individually adjustable switching speed, High (12 V), Low (0 V), max. 20 mA
R2*	Transistor switching output 2, individually adjustable switching speed, High (12 V), Low (0 V), max. 20 mA
R3*	Transistor switching output 3, individually adjustable 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, for example DS 93 R (accessory)	
Speed switch version DSL.E	
R1 (A+B)	Electronic relay output 1, individually adjustable switching speed, 5 ... 230 V AC/DC
R2 (A+B)	Electronic relay output 2, individually adjustable switching speed, 5 ... 230 V AC/DC
C1 (A+B)	Electronic relay output as a control output, 5 ... 250 mA
RS 485	Interface for PC or Laptop (adapter required). Programming of the DSL via the included software.

Terminal assignment

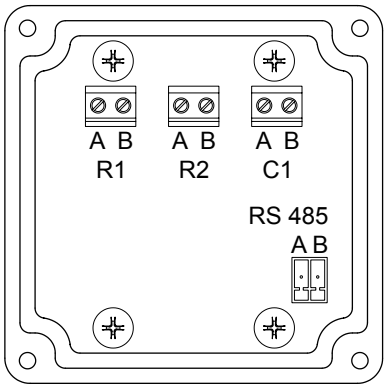
View A - Connecting terminal in terminal box



View B - Connecting terminal speed switch
Version DSL.R

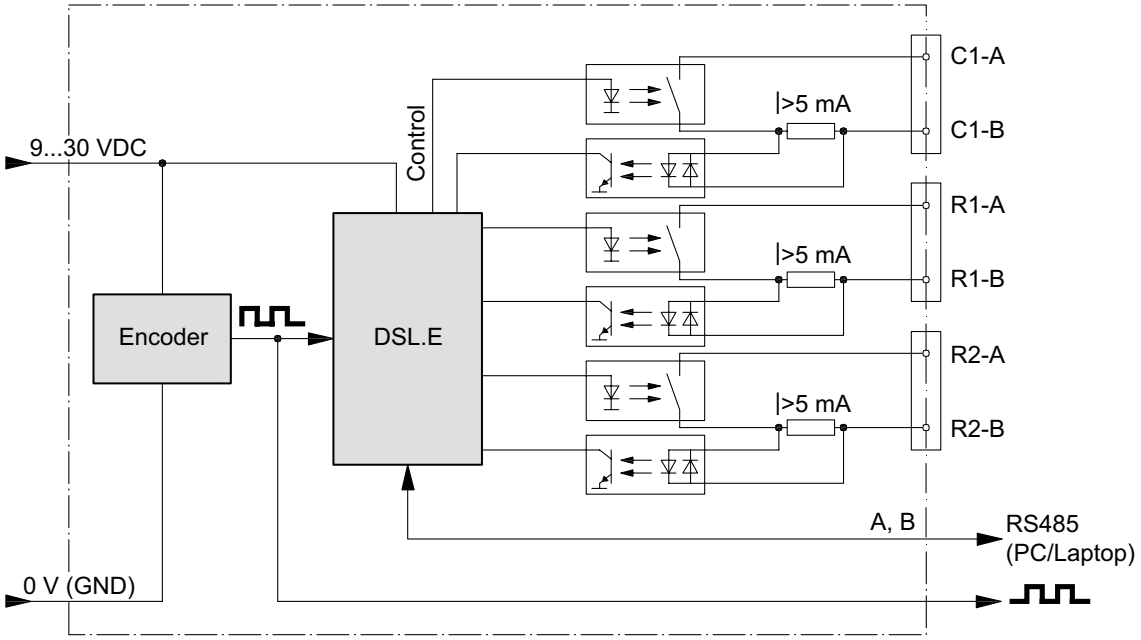


View B - Connecting terminal speed switch
Version DSL.E

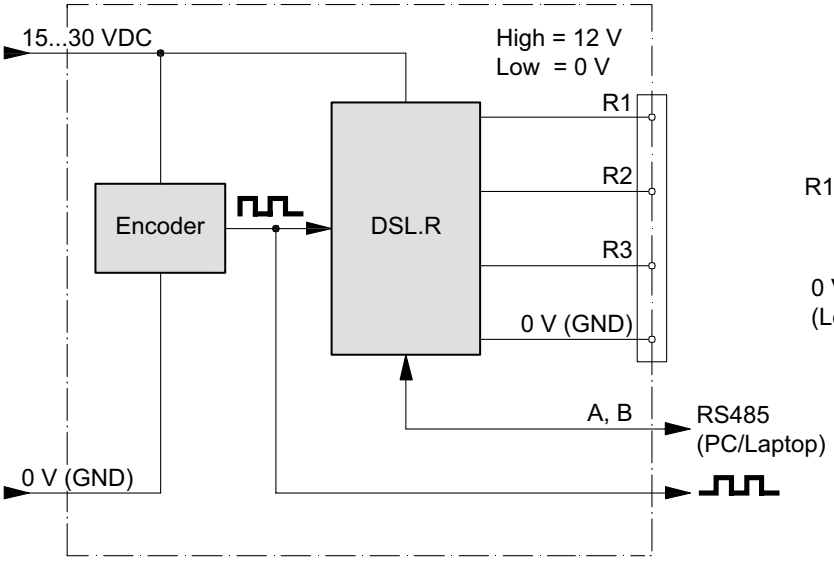


Block circuit diagram

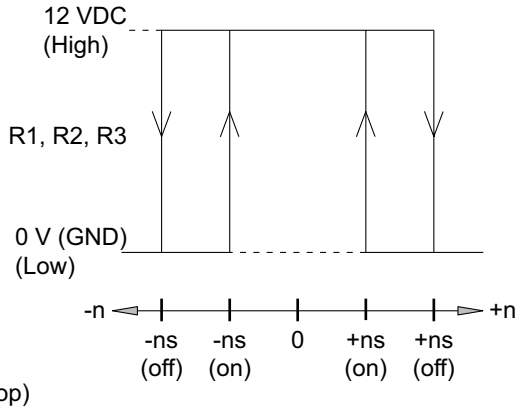
Version with DSL.E



Version with DSL.R



Switching characteristics



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

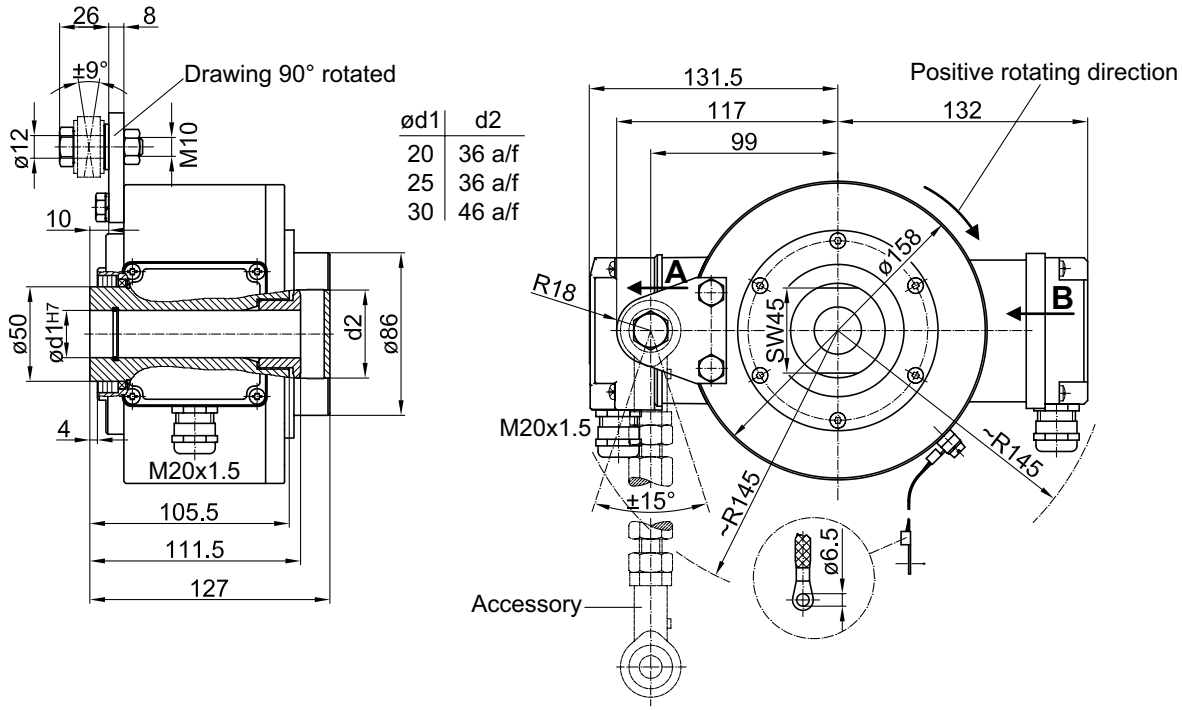
Combination

Encoder with integrated programmable, digital speed switch
Through hollow shaft ø20...50 mm
512...2500 pulses per revolution

HOG 16 + DSL

Dimensions

HOG 16 + DSL - Version with insert nut



HOG 16 M + DSL - Version with clamping ring