

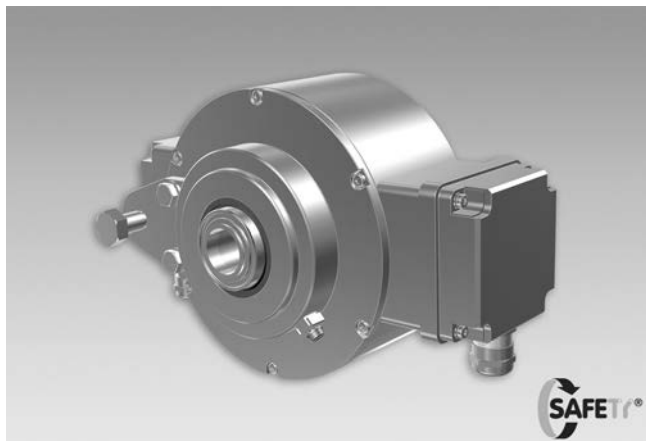
# Combination

Encoder with integrated programmable, digital speed switch

Through hollow shaft  $\varnothing 25$  mm

512...4096 pulses per revolution

HOG 165 + DSL



HOG 165 + DSL

## Technical data - electrical ratings

Voltage supply	With DSL.R: 15...30 VDC With DSL.E: 9...30 VDC
Consumption w/o load	$\leq 200$ mA
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

## Technical data - electrical ratings (encoder)

Pulses per revolution	512...4096
Phase shift	$90^\circ \pm 20^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width $90^\circ$
Output frequency	$\leq 120$ kHz
Output signals	K1, K2, K0 + inverted
Output stages	HTL, TTL/RS422

## Technical data - electrical ratings (speed switches)

Interface	RS485
Switching accuracy	$\pm 2$ % (or Digit)
Switching outputs	With DSL.R: 3 outputs, speed control With DSL.E: 2 outputs, speed control and 1 control output
Output switching capacity	With DSL.R: 12 VDC; $\leq 40$ mA With DSL.E: 5...230 VAC/VDC; 5...250 mA
Switching delay time	$\leq 40$ ms

## Features

- Freely programmable on and off switching speed
- Programming via included software (RS485 interface)
- Logic level TTL or HTL
- 512...4096 pulses per revolution
- Through hollow shaft  $\varnothing 25$  mm
- DSL.R: 3 outputs speed controlled (independent transistor outputs)
- DSL.E: 2 outputs speed controlled and 1 control output

## Optional

- Relay module DS 93 R (DSL.R version only)

## Technical data - mechanical design

Size (flange)	$\varnothing 165$ mm
Shaft type	$\varnothing 25$ mm (through hollow shaft)
Admitted shaft load	$\leq 500$ N axial $\leq 650$ N radial
Protection DIN EN 60529	IP 67
Speed (n)	$\leq 6000$ rpm
Range of switching speed (ns)	Pulses = 512: $\pm 16$ ...6000 rpm Pulses = 1024: $\pm 8$ ...6000 rpm Pulses = 2048: $\pm 4$ ...3500 rpm Pulses = 2500: $\pm 3$ ...2900 rpm Pulses = 4096: $\pm 3$ ...1750 rpm
Operating torque	$\leq 15$ Ncm
Rotor moment of inertia	4.9 kgcm <sup>2</sup>
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	-30...+85 °C
Resistance	IEC 60068-2-6 Vibration 20 g, 10-2000 Hz IEC 60068-2-27 Shock 300 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions CX (C5-M) according to ISO 12944-2
Explosion protection	II 3 G Ex nA IIC T4 Gc (gas) II 3 D Ex tc IIIC T135°C Dc (dust)
Connection	Terminal box
Weight approx.	4.2 kg
Approval	CE

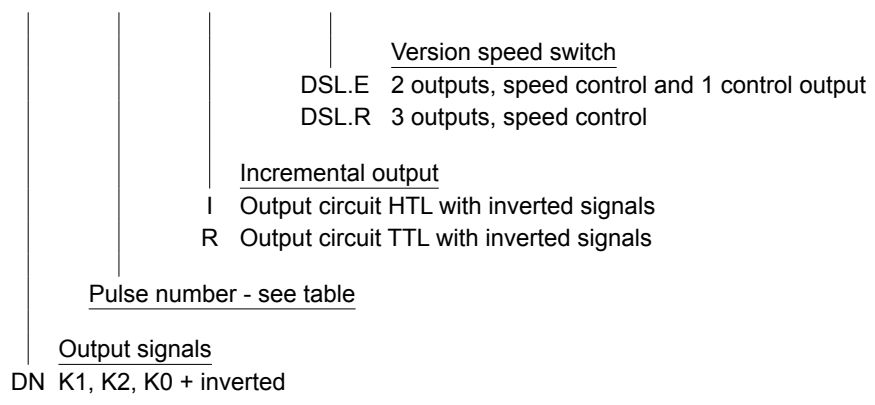
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## Encoder with integrated programmable, digital speed switch Through hollow shaft $\varnothing 25$ mm 512...4096 pulses per revolution

**HOG 165 + DSL**

### Part number

HOG165 DN         +  



### Pulse number

512	1024	2048	2500	4096
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### 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

11054922	Torque arm M12, length 155 (-10/+15) mm
11054921	Torque arm M12, length 190 (-10/+15) mm
11072741	Torque arm M12, length 480-540 mm (shortenable $\geq 200$ mm)
11054924	Torque arm M12 insulated, length 155 (-10/+15) mm
11072723	Torque arm M12 insulated, length 480-540 mm (shortenable $\geq 200$ mm)
11069336	Mounting kit for torque arm size M12 and an earthing strap

#### Diagnostic accessories

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

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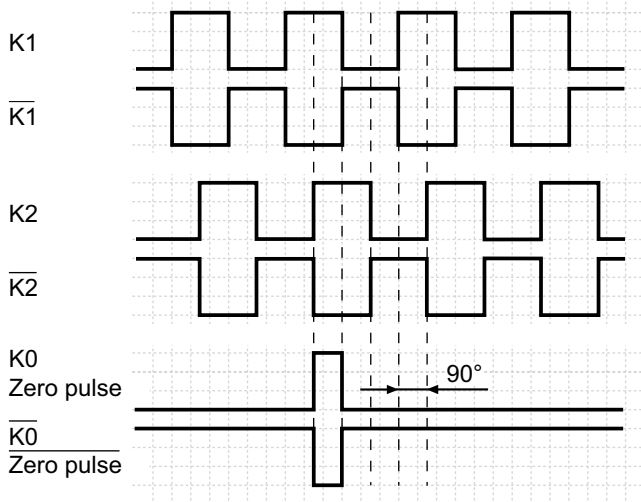
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## HOG 165 + DSL

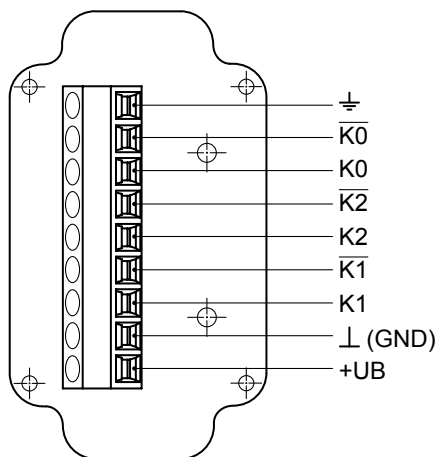
### Output signals

At positive rotating direction

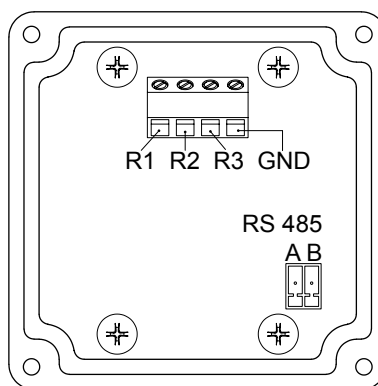


### Terminal assignment

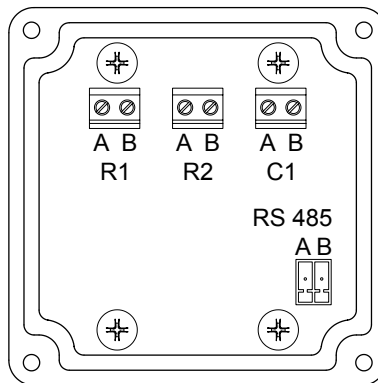
View A - Connecting terminal in terminal box



View B - Connecting terminal speed switch Version DSL.R



View B - Connecting terminal speed switch Version DSL.E



### 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.

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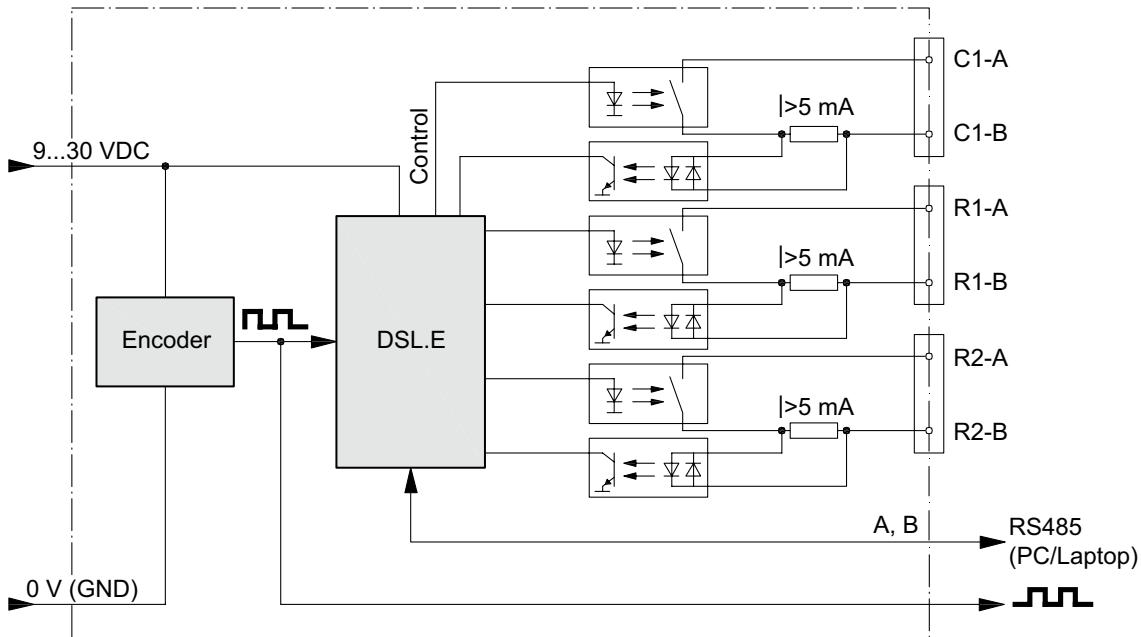
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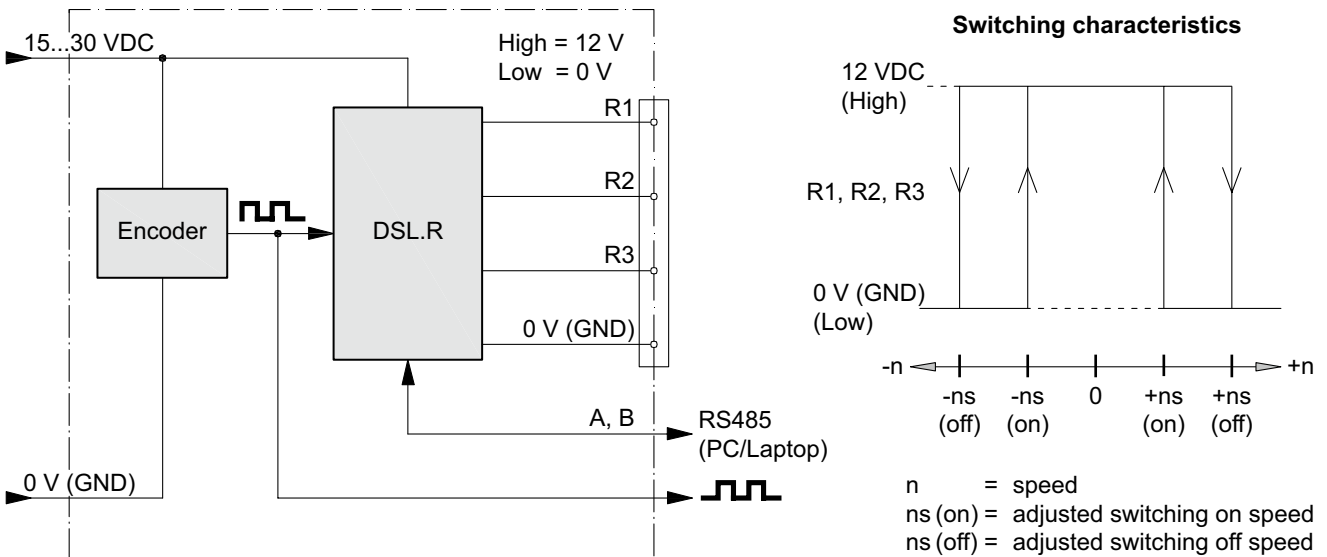
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## Block circuit diagram

### Version with DSL.E



### Version with DSL.R



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## Dimensions

