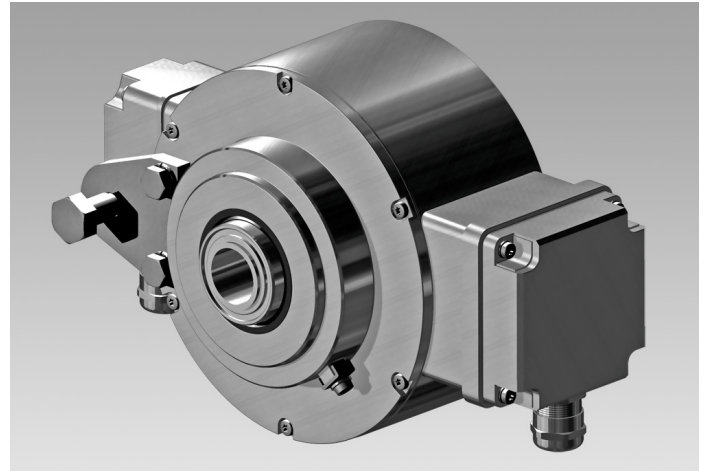


## HOG 165 + DSL

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

### Overview

- 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



### Technical data

#### 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 switch)

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  
(EAC:  $< 50$  VAC / 75 VDC)

Switching delay time  $\leq 40$  ms

#### Technical data - mechanical design

Size (flange)  $\varnothing 165$  mm

Shaft type  $\varnothing 25$  mm (through hollow shaft)

#### Technical data - mechanical design

Admitted shaft load  $\leq 500$  N axial  
 $\leq 650$  N radial

Protection 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 = 2000:  $\pm 5$ ...3600 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>

Material 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 ec IIC T4 Gc (gas)  
II 3 D Ex tc IIIC T135°C Dc (dust)  
(only with option ATEX)

Connection Terminal box

Weight approx. 4.2 kg

Approval CE

### Optional

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

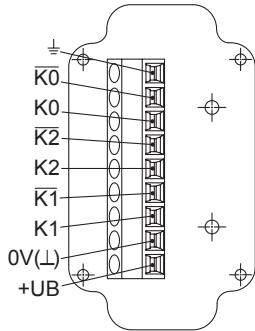
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## Terminal assignment

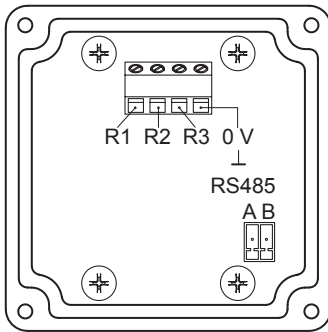
### View A (see dimension)

Connecting terminal terminal box encoder



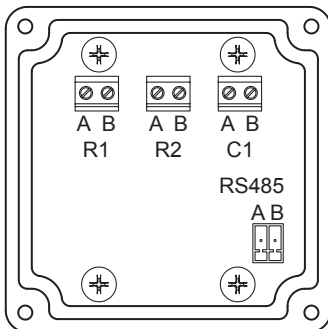
### View B (see dimension)

Connecting terminal speed switch DSL.R



### View B (see dimension)

Connecting terminal speed switch DSL.E



## Terminal significance

### Encoder incremental

+UB	Voltage supply
0V ( $\perp$ )	Ground
$\perp$	Earth ground (housing)
K1	Output signal channel 1
$\bar{K}1$	Output signal channel 1 inverted
K2	Output signal channel 2 (offset by 90° to channel 1)
$\bar{K}2$	Output signal channel 2 inverted
K0	Zero pulse (reference signal)
$\bar{K}0$	Zero pulse inverted

## Terminal significance

### Speed switch 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
RS485	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)

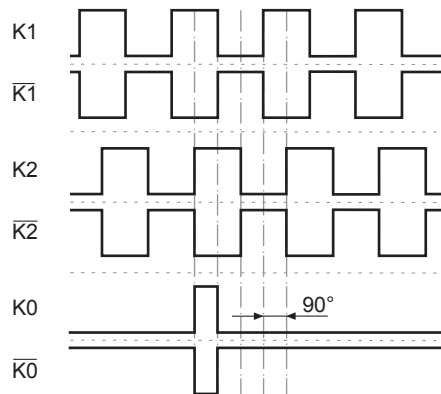
### Speed switch DSL.E

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
RS485	Interface for PC or Laptop (adapter required). Programming of the DSL via the included software.

## Output signals

### HTL/TTL

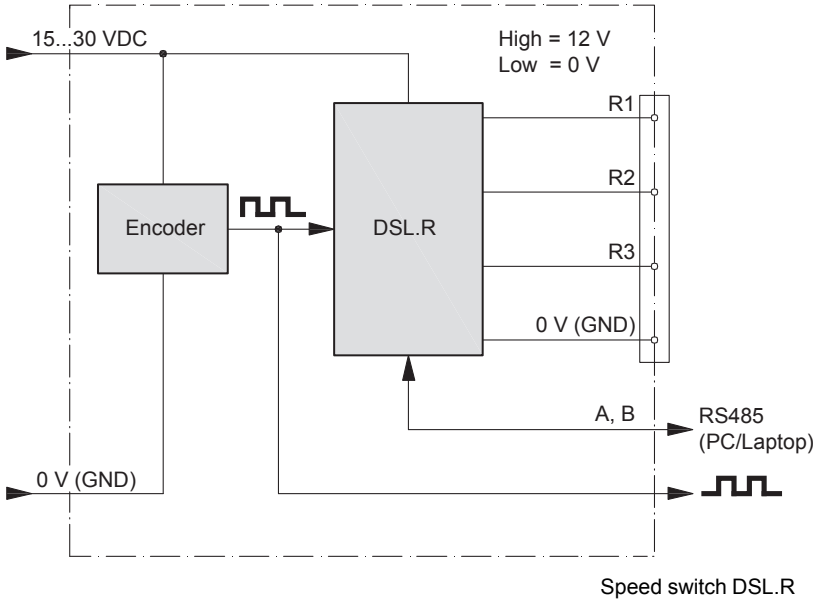
At positive rotating direction (see dimension)



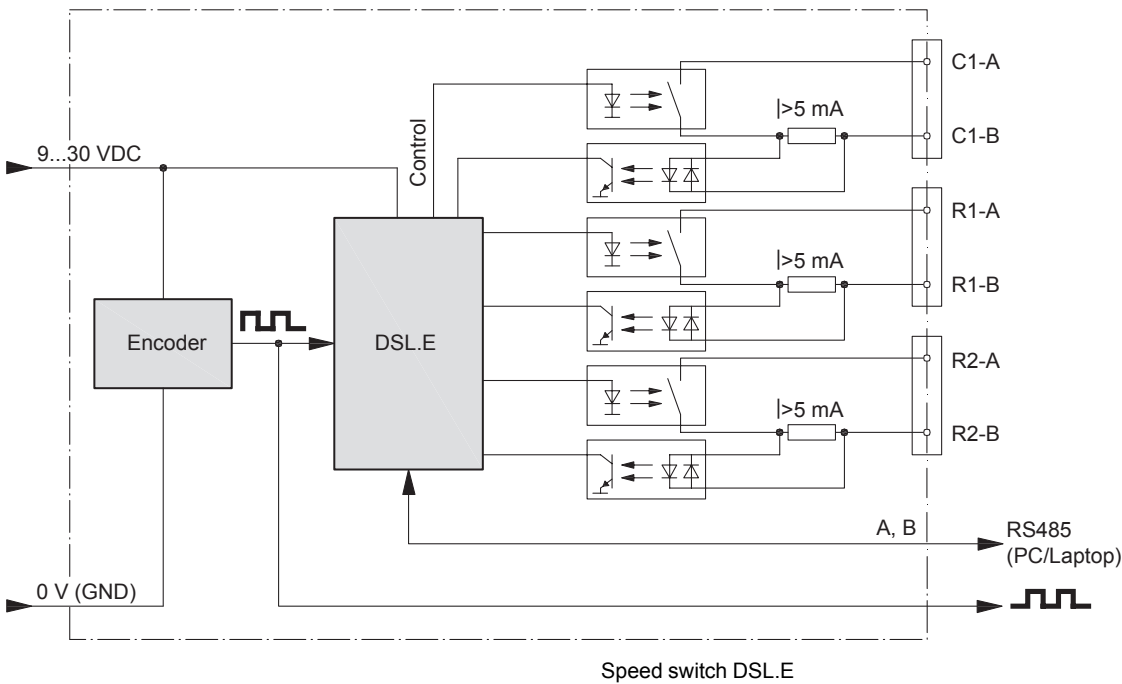
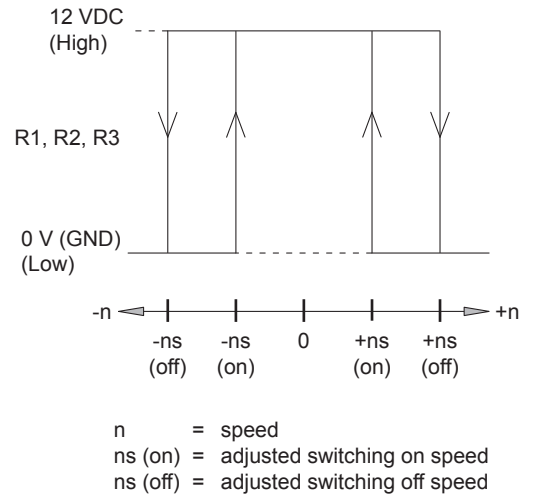
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## Block circuit diagram



## Switching characteristics

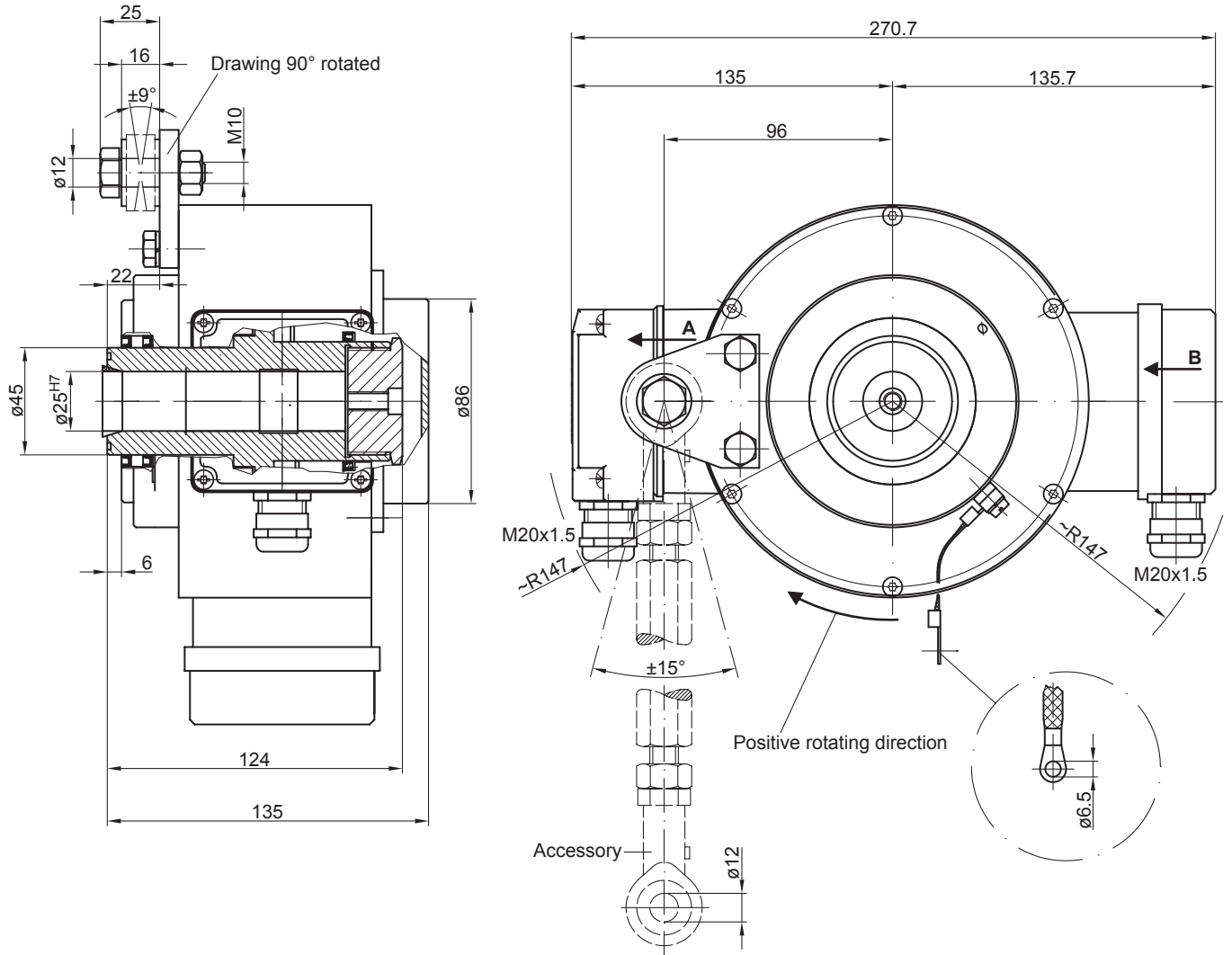


# HOG 165 + DSL

Encoder with integrated programmable, digital speed switch

Through hollow shaft  $\varnothing 25$  mm / 512...4096 pulses per revolution

## Dimensions



# HOG 165 + DSL

Encoder with integrated programmable, digital speed switch

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## Ordering reference

		HOG165	DN	####	#	#####
<b>Product</b>						
Incremental encoder + Speed switch		HOG165				
<b>Output signals</b>						
K1, K2, K0			DN			
<b>Pulse number</b>						
512				512		
1024				1024		
2048				2048		
2500				2500		
4096				4096		
<b>Incremental output</b>						
Output circuit HTL with inverted signals						I
Output circuit TTL with inverted signals						R
<b>Version speed switch</b>						
2 outputs, speed control and 1 control output						+ DSL.E
3 outputs, speed control						+ DSL.R

## Accessories

### Mounting accessories

11054922	Torque arm M12, length 145...170 mm
11054921	Torque arm M12, length 180...205 mm
11072741	Torque arm M12, length 480...540 mm ( $\geq 200$ mm)
11054924	Torque arm M12 insulated, length 145...170 mm
11072723	Torque arm M12 insulated, length 480...540 mm ( $\geq 200$ mm)
11069336	Mounting kit for torque arm size M12 and an earthing strap