Baumer
Passion for Sensors

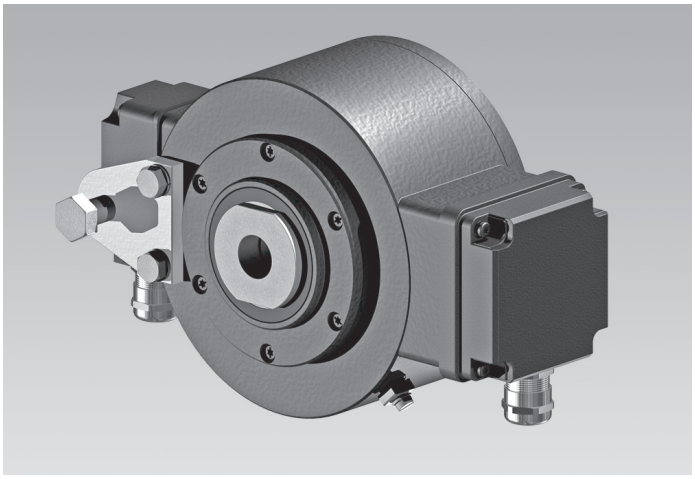
Incremental encoders - combination

HOG 16 + DSL

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

Overview

- Freely programmable switch-on and switch-off speed
- Programming via included software (RS485 interface)
- Output stages HTL or TTL
- DSL.R: 3 outputs speed controlled
- 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	≤200 mA
Sensing method	Optical
Approval	CE
Technical data - electrical ratings (encoder)	
Pulses per revolution	512 … 2500
Phase shift	90 ° ±20°
Duty cycle	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 % (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; ≤40 mA With DSL.E: 5...230 VAC/VDC; 5...250 mA
Switching delay time	≤40 ms
Technical data - mechanical design	
Size (flange)	ø158 mm

Technical data - mechanical design	
Shaft type	ø20...50 mm (through hollow shaft)
Admitted shaft load	≤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
Material	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
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
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

Optional

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

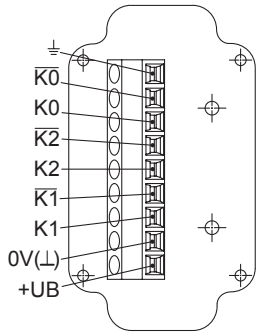
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HOG 16 + DSL

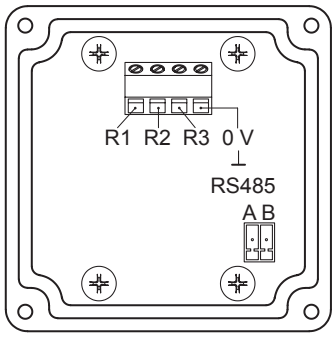
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Terminal assignment

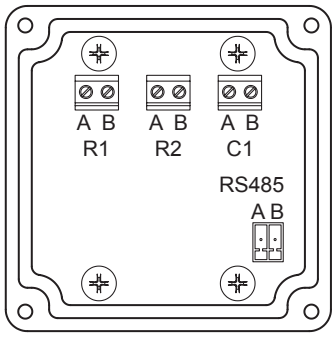
View A *(see dimension)*
Connecting terminal terminal box encoder



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 (⊥)	Ground
⏚	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

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.

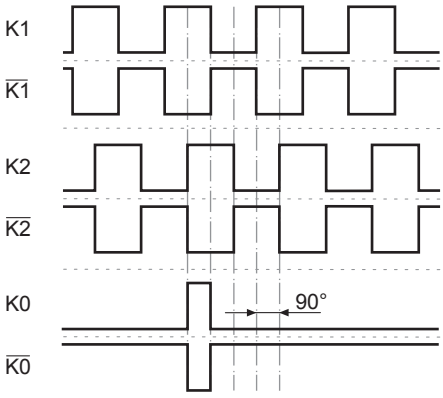
* Connection to relay module, for example DS 93 R (accessory)

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)*

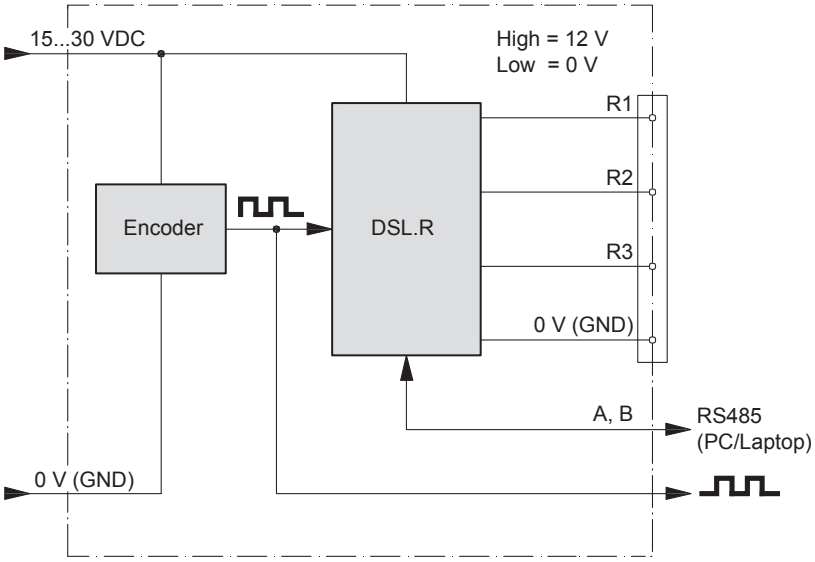


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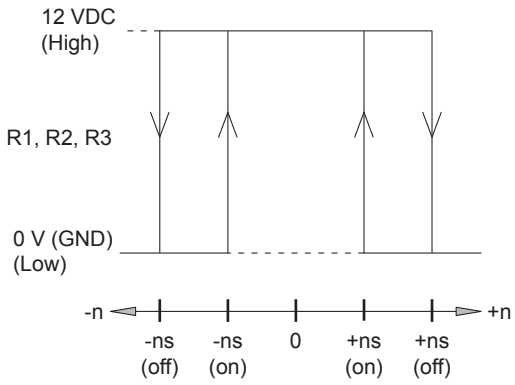
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Block circuit diagram

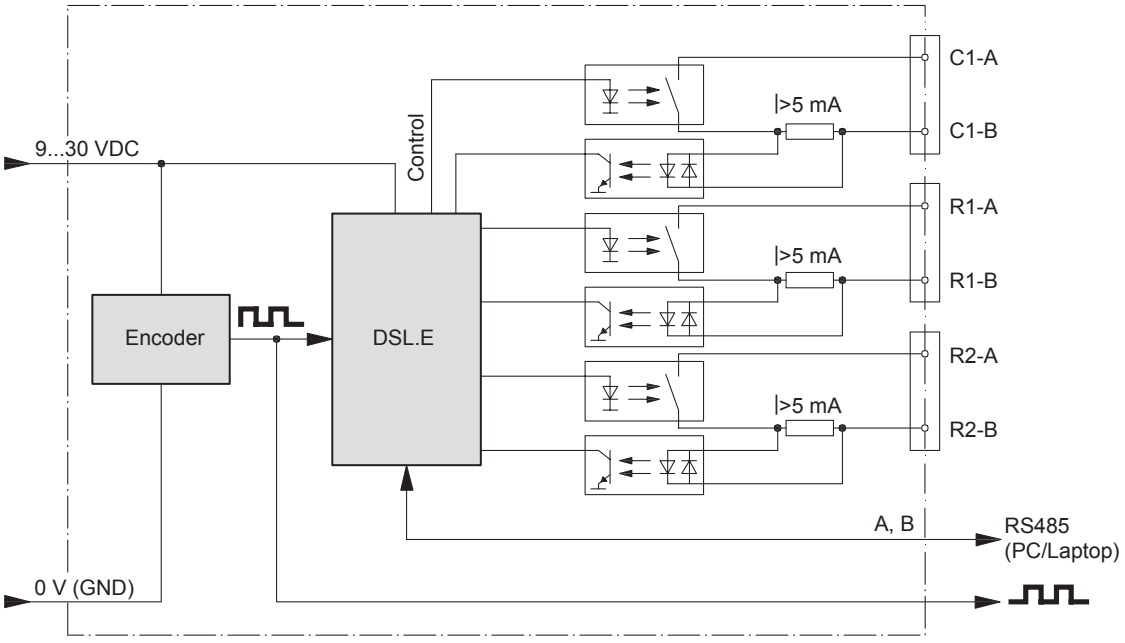


Switching characteristics



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

Speed switch DSL.R



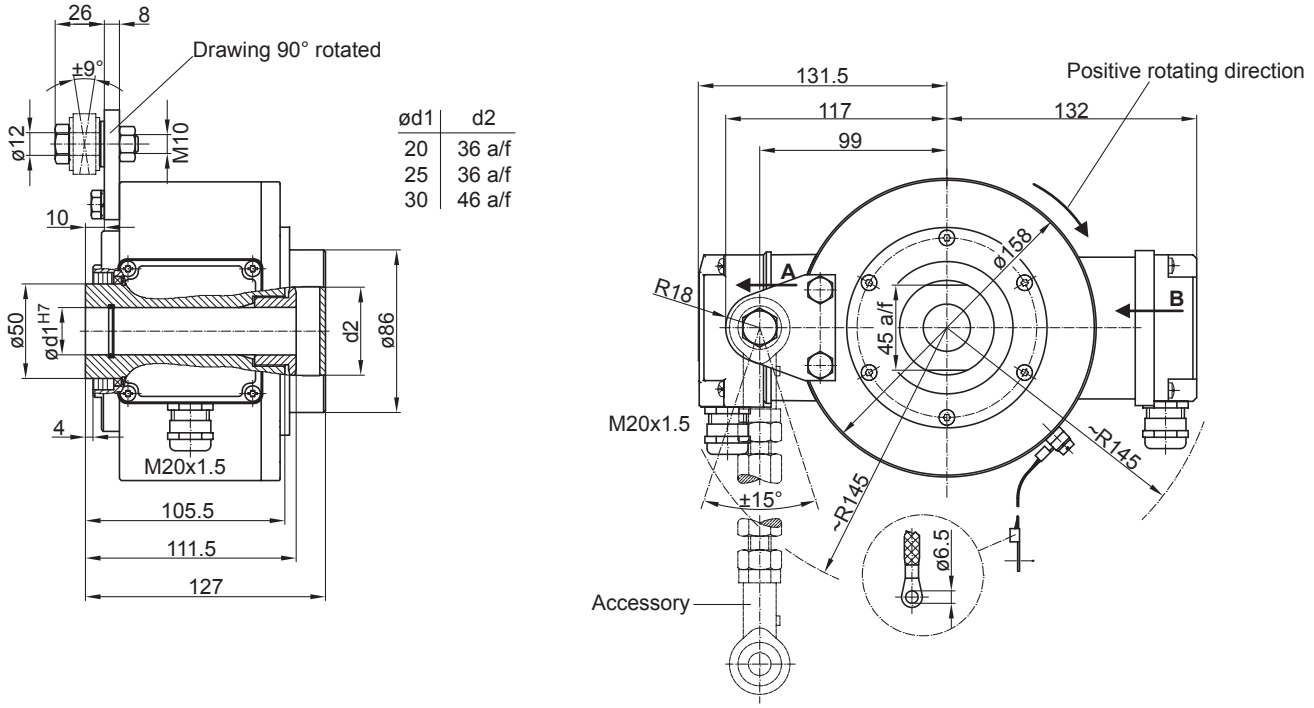
Speed switch DSL.E

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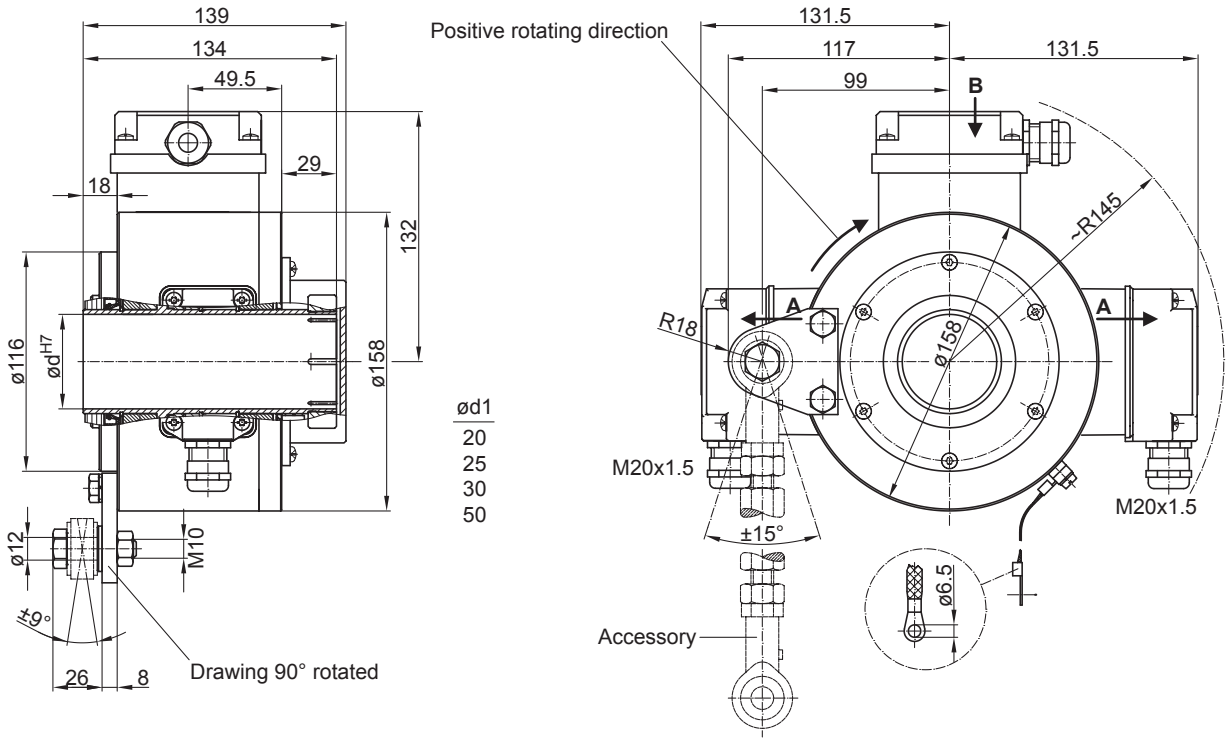
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Dimensions



ød1	d2
20	36 a/f
25	36 a/f
30	46 a/f

With single sensing and insert nut



ød1
20
25
30
50

With redundant sensing and clamping ring

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Ordering reference

	HOG16	#	#	DN	####	#	######	######
Product								
Incremental encoder + Speed switch	HOG16							
Shaft type								
Standard ball bearings								
With hybrid bearings		C						
Redundant sensing								
Without redundant sensing								
With redundant sensing			M					
Output signals								
K1, K2, K0				DN				
Pulse number								
512					512			
1024					1024			
2048					2048			
2500					2500			
Incremental output								
Output circuit HTL with inverted signals						I		
Output circuit TTL with inverted signals						R		
Shaft diameter								
Blind hollow shaft ø20 mm							20H7	
Through hollow shaft ø25 mm							25H7	
Through hollow shaft ø30 mm							30H7	
Through hollow shaft ø50 mm							50H7	
Version speed switch								
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 (≥200 mm)
11054924	Torque arm M12 insulated, length 145...170 mm
11072723	Torque arm M12 insulated, length 480...540 mm (≥200 mm)
11069336	Mounting kit for torque arm size M12 and an earthing strap

Connectors and cables	
	Sensor cable for encoders HEK 8
11064248	USB → RS485 converter
11117345	USB → RS485 converter with connecting cable for DSL

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

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