Baumer
Passion for Sensors

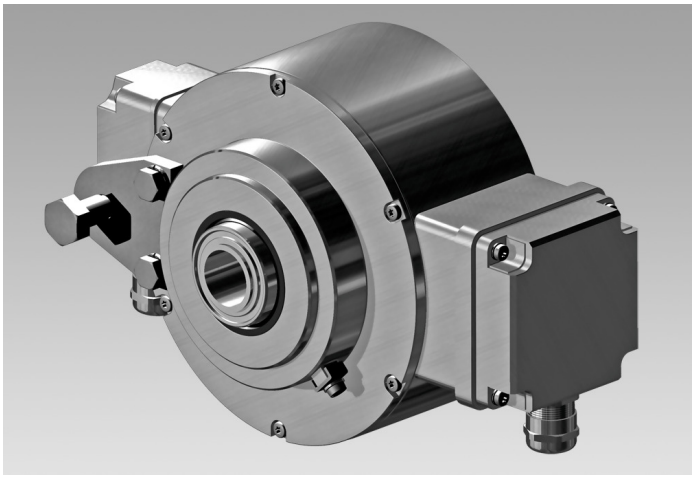
Incremental encoders - combination

HOG 165 + DSL

Encoder with integrated programmable, digital speed switch
Through hollow shaft ø25 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 ø25 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	≤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 ° ±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 switch)	
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 (EAC: <50 VAC / 75 VDC)
Switching delay time	≤40 ms
Technical data - mechanical design	
Size (flange)	ø165 mm
Shaft type	ø25 mm (through hollow shaft)

Technical data - mechanical design	
Admitted shaft load	≤500 N axial ≤650 N radial
Protection EN 60529	IP 67
Speed (n)	≤6000 rpm
Range of switching speed (ns)	Pulses = 512: ±16...6000 rpm Pulses = 1024: ±8...6000 rpm Pulses = 2000: ±5...3600 rpm Pulses = 2048: ±4...3500 rpm Pulses = 2500: ±3...2900 rpm Pulses = 4096: ±3...1750 rpm
Operating torque	≤15 Ncm
Rotor moment of inertia	4.9 kgcm²
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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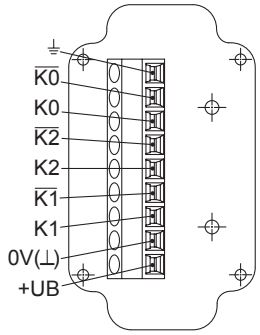
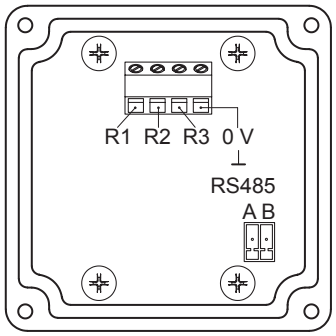
Terminal assignment

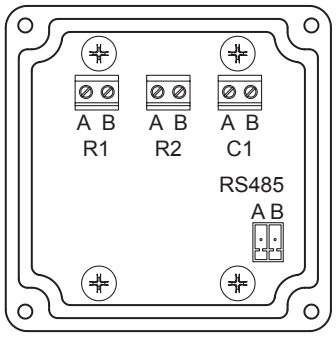
View A *(see dimension)*
Connecting terminal terminal box encoder



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 (⊥)	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

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.

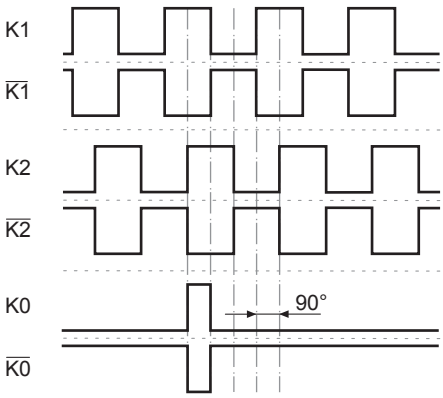
* Connection to relay module, for example DS 93 R (accessory)

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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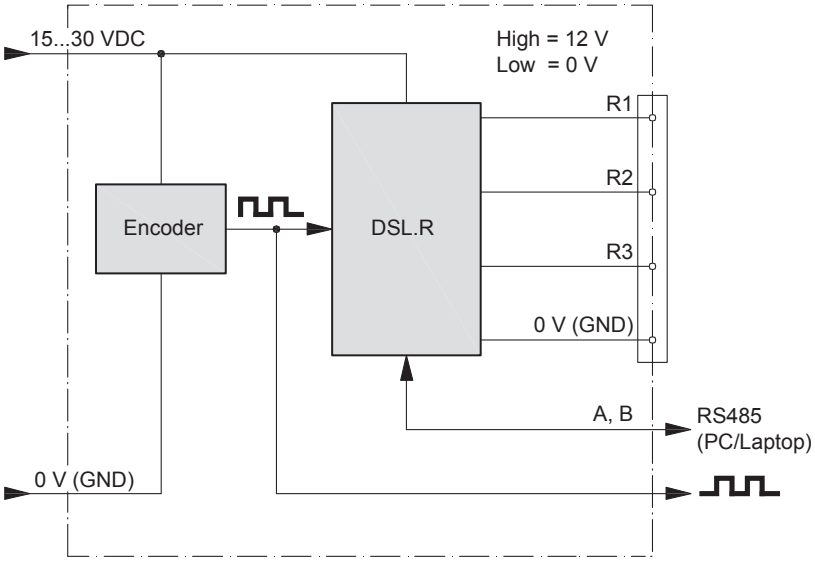
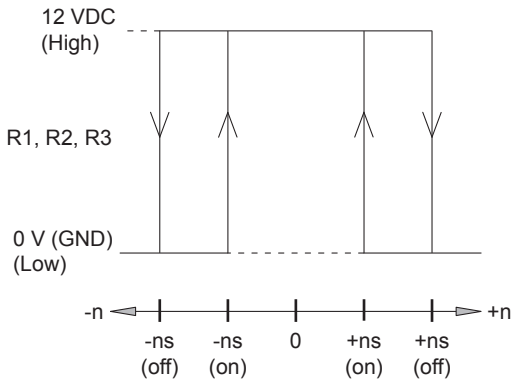
Block circuit diagram

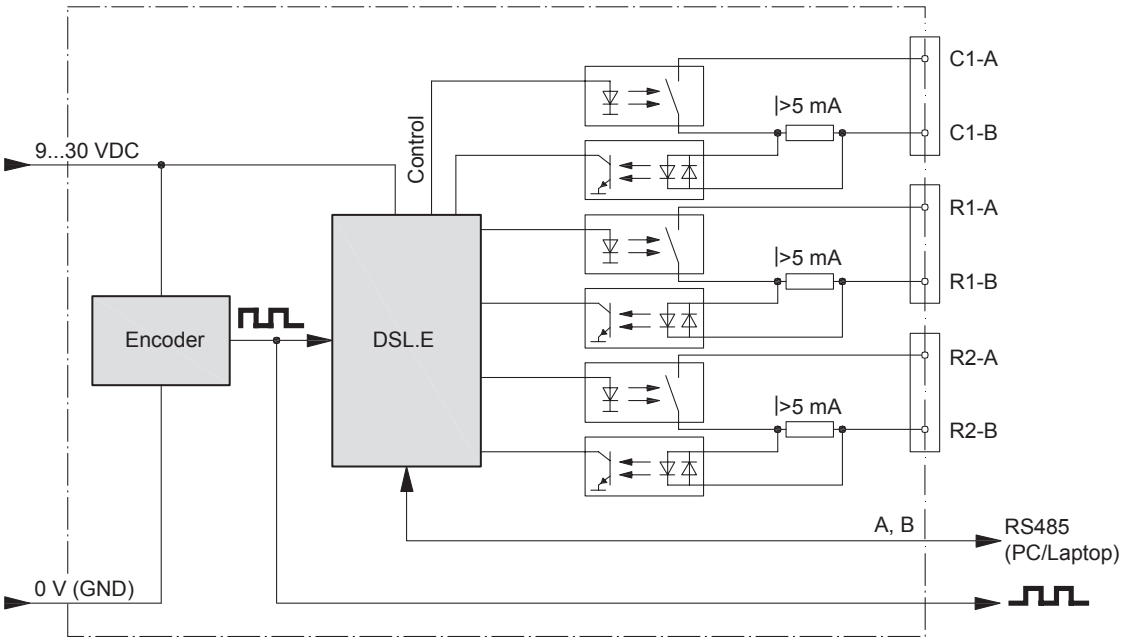


Switching characteristics



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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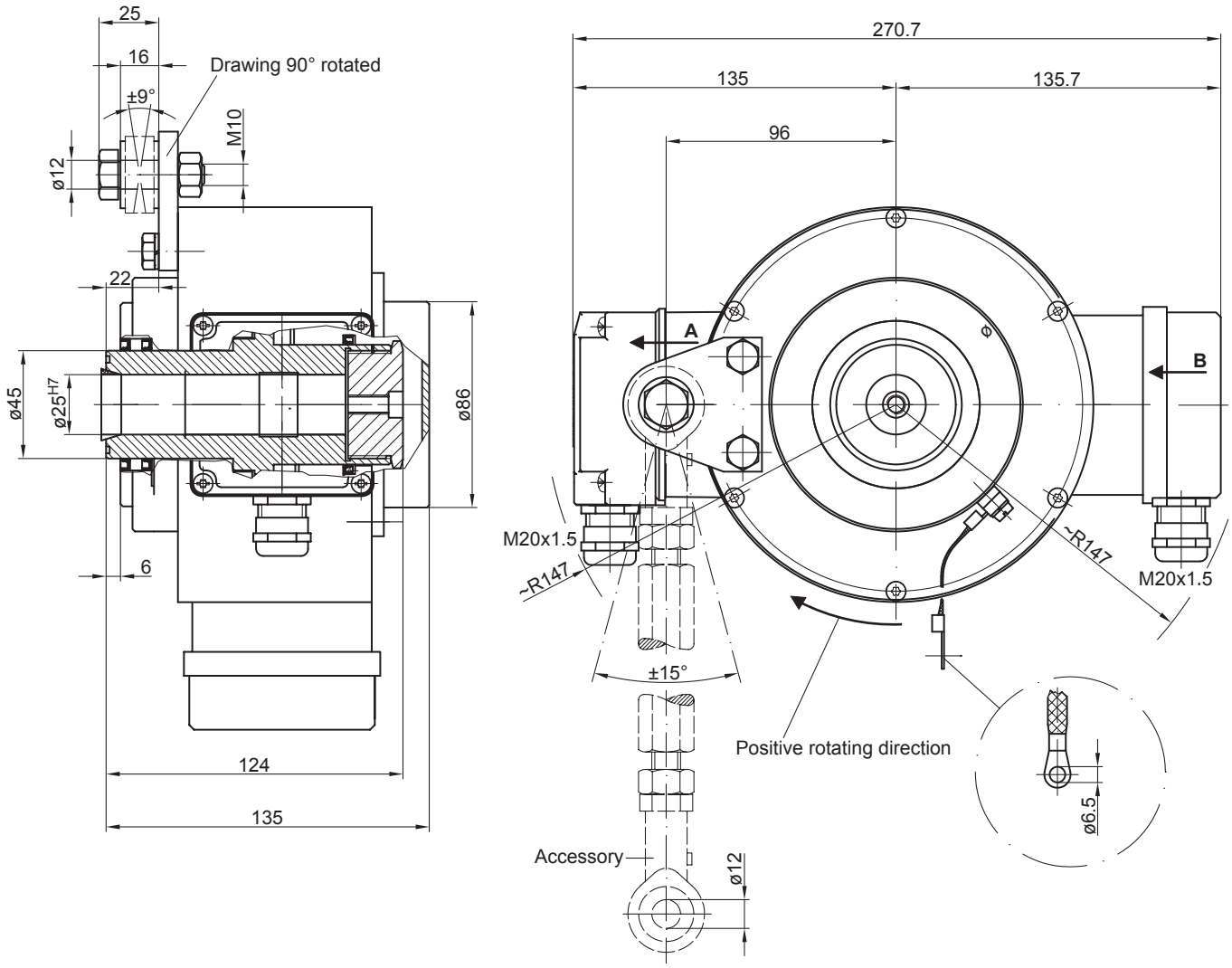
Dimensions



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Ordering reference

	HOG165	DN	####	#	######
Product					
Incremental encoder + Speed switch	HOG165				
Output signals					
K1, K2, K0		DN			
Pulse number					
512			512		
1024			1024		
2048			2048		
2500			2500		
4096			4096		
Incremental output					
Output circuit HTL with inverted signals				I	
Output circuit TTL with inverted signals				R	
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