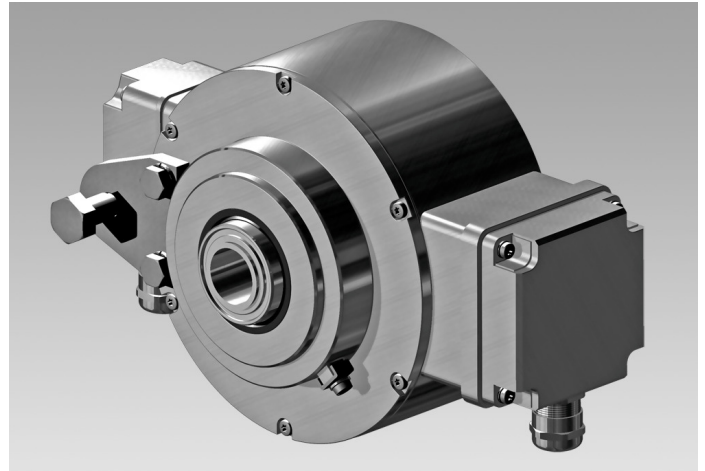


HOG 165 + DSL

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	≤ 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°
------------------	------------------------------

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)	$\varnothing 165$ mm
---------------	----------------------

Shaft type	$\varnothing 25$ 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 kgcm ²
-------------------------	-------------------------

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)

HOG 165 + DSL

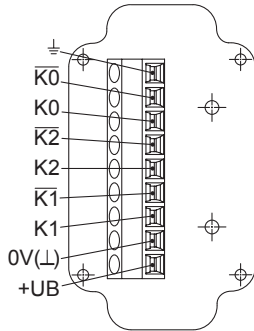
Encoder with integrated programmable, digital speed switch

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

Terminal assignment

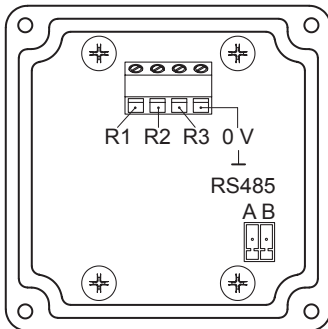
View A (see dimension)

Connecting terminal terminal box encoder



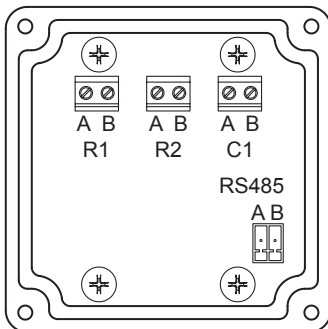
View B (see dimension)

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
K1	Output signal channel 1 inverted
K2	Output signal channel 2 (offset by 90° to channel 1)
K2	Output signal channel 2 inverted
K0	Zero pulse (reference signal)
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)

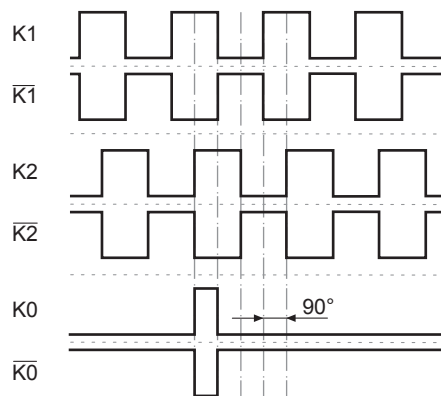
Speed switch DSL.E

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)

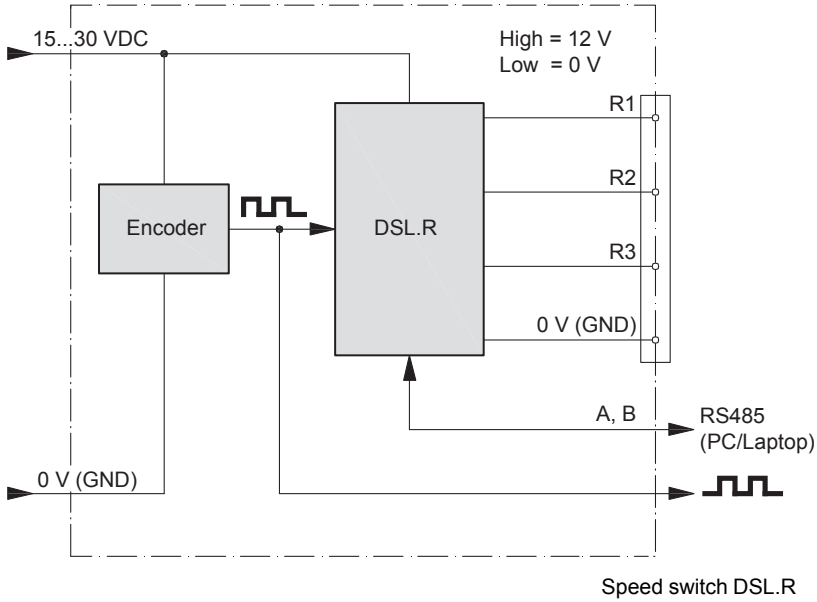


HOG 165 + DSL

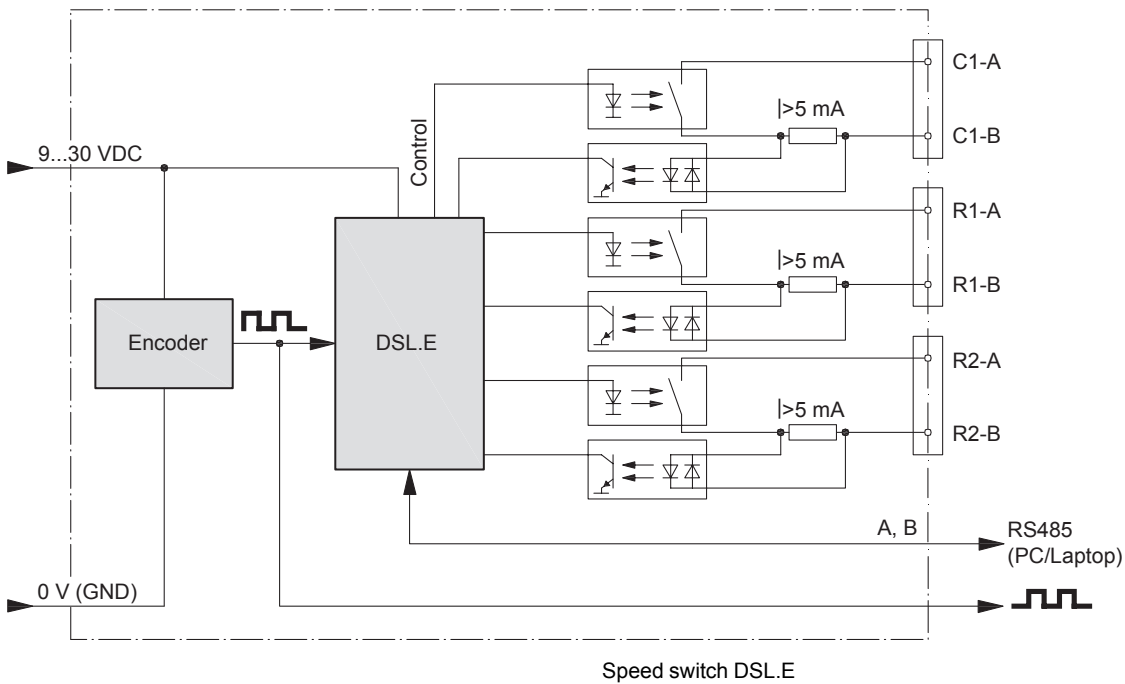
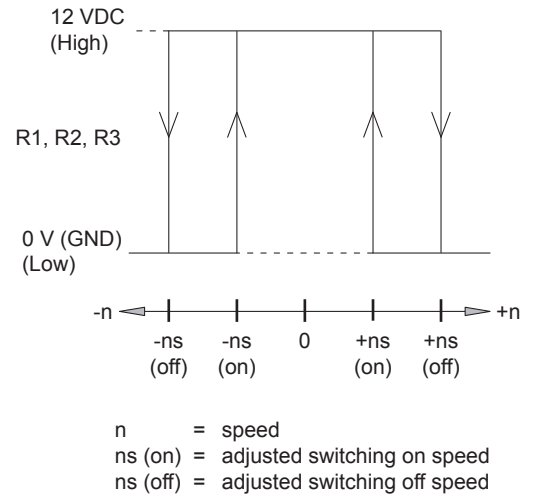
Encoder with integrated programmable, digital speed switch

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

Block circuit diagram



Switching characteristics

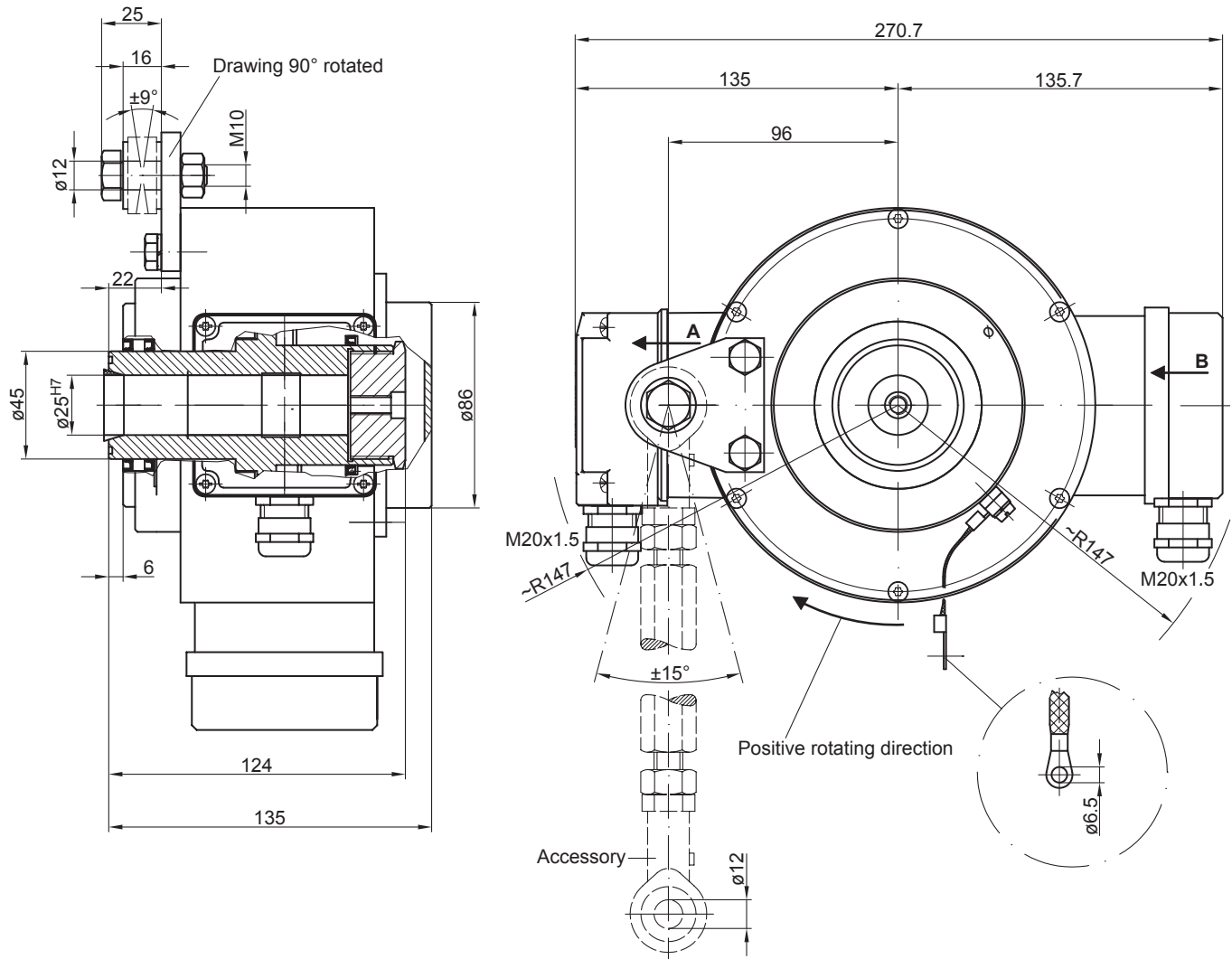


HOG 165 + DSL

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

Through hollow shaft ø25 mm / 512...4096 pulses per revolution

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

Diagnostic accessories

11075858	Analyzer for encoders HENQ 1100
11075880	Analyzer for encoders HENQ 1100 B