Encoders without bearings - incremental

HG 16

Incremental encoder with optical sensing

Through hollow shaft ø20...45 mm / 250…2048 pulses per revolution

Overview

- Large axial and radial displacement of the shaft permitted
- Fit for high operating speed
- Robust and wearless
- Max. 2048 pulses per revolution
- Output stage TTL with regulator UB 9...26 VDC



HTL TTL® HÜBNER BERLIN A Baumer Brand

Technical data

Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC ±5 % 9...26 VDC
Consumption w/o load	≤100 mA
Pulses per revolution	250 … 2048
Output signals	K1, K2, K0 + inverted
Reference signal	Zero pulse, width 90°
Output frequency	≤120 kHz
Phase shift	90 ° ±20°
Duty cycle	40…60 %
Sensing method	Optical
Output stages	HTL TTL/RS422
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823

Technical data - mechanical design

Size (flange)	ø158 mm
Shaft type	ø20...45 mm (through hollow shaft)
Axial tolerance	-0,5 … 1,5 mm (with zero pulse) -0,5 … 2,5 mm (without zero pulse)

Technical data - mechanical design

Radial tolerance	±0,05 mm (with zero pulse) ±0,2 mm (without zero pulse)
Protection DIN EN 60529	IP 56 (≤9000 U/min) IP 54 (≤12000 rpm) IP 23 (≤30000 rpm)
Operating speed	≤9000 rpm (IP 56) ≤12000 rpm (IP 54) ≤30000 rpm (IP 23)
Operating torque typ.	1 Nm
Material	Housing: aluminium Shaft: stainless steel
Rotor moment of inertia	8,5 kgcm²
Operating temperature	-30...+100 °C
Resistance	IEC 60068-2-6 Vibration 10 g, 10...2000 Hz IEC 60068-2-27 Shock 100 g, 6 ms
Weight approx.	2,4 kg
Connection	Terminal box (2x with option M) Flange connector M23, 12-pin (2x with option M)

Optional

- Electrical connection with flange connector and mating connector
- Redundant sensing (option M)

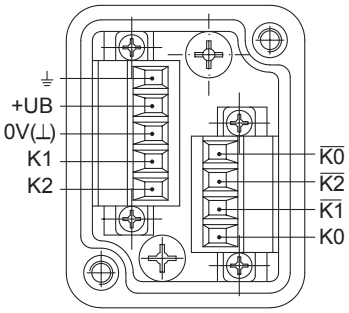
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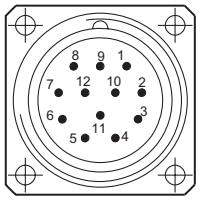
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Terminal assignment

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



View B *(see dimension)*
Assignment flange connector



Flange connector M23,
male, 12-pin,
clockwise (CW)

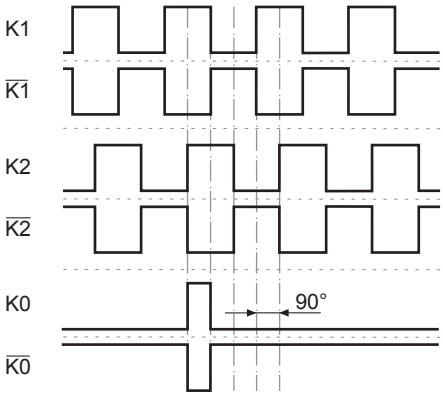
Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	dnu
8	K2
9	dnu
10	0V (⊥)
11	dnu
12	+UB

Terminal significance

+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
dnu	Do not use

Output signals

HTL/TTL
At positive rotating direction *(see dimension)*



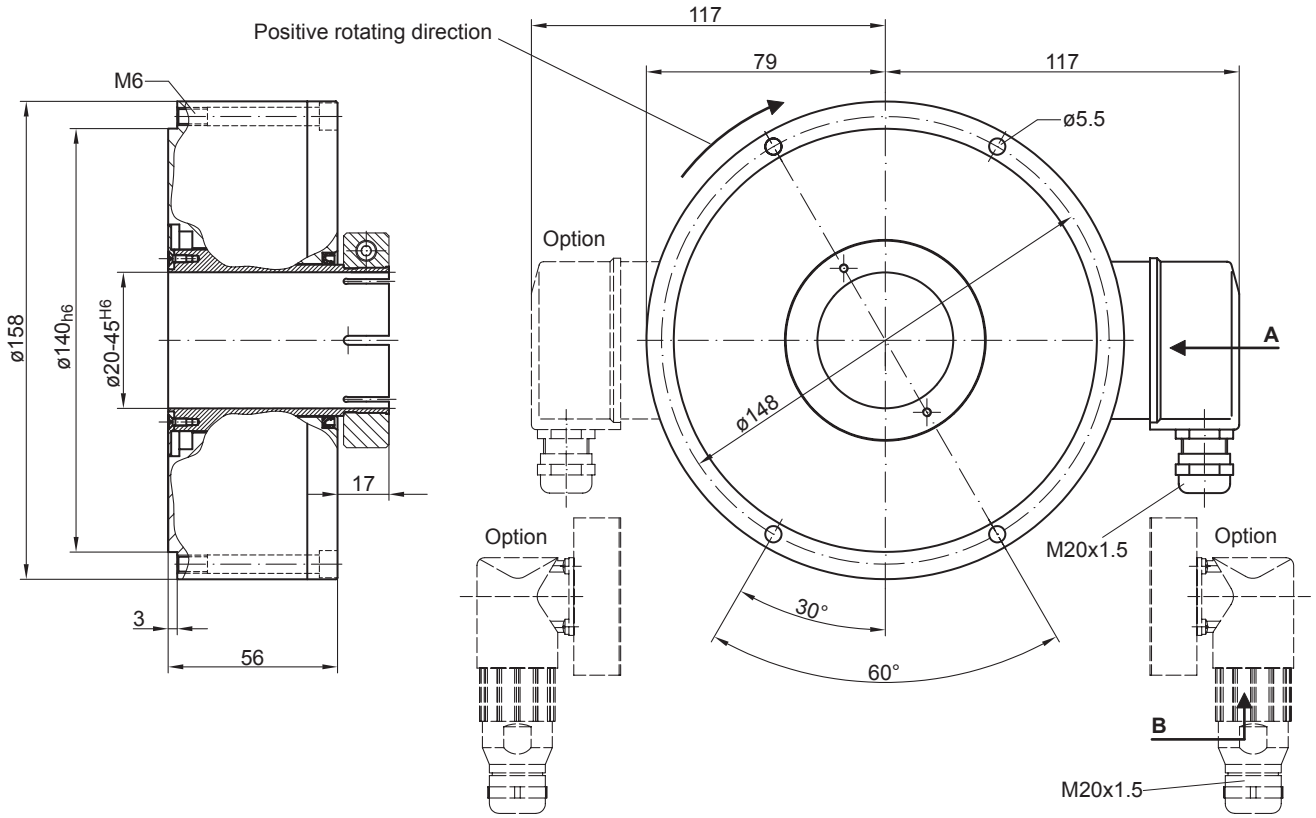
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Dimensions



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Incremental encoder with optical sensing

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Ordering reference

	HG16	#	DN	####	###
Product					
Incremental encoder	HG16				
Redundant sensing					
Without redundant sensing					
With redundant sensing		M			
Output signals					
K1, K2, K0			DN		
Pulse number(1)					
250				250	
500				500	
512				512	
600				600	
1000				1000	
1024				1024	
1080				1080	
1200				1200	
2048				2048	
Voltage supply / output stage					
9...30 VDC / output stage HTL					
9...30 VDC / output stage HTL with inverted signals					I
5 VDC / output stage TTL with inverted signals					TTL
9...30 VDC / output stage TTL with inverted signals					R

(1) Other pulse numbers on request.

Accessories

Connectors and cables	
	Sensor cable for encoders HEK 8

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

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