Baumer
Passion for Sensors

Incremental encoders

FOG 9

Solid shaft ø10 mm or ø11 mm with EURO flange B10

100...5000 pulses per revolution

Overview

- Solid shaft ø10 mm or ø11 mm
- Compact, robust die-cast housing
- Flange connector with metal mating connector
- EURO flange B10
- Output stage TTL with regulator UB 9...30 VDC
- Output stage HTL with power linedriver

HTL TTL® B10® HUBNER BERLIN A Baumer Brand

Technical data

Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC ±5 %
Consumption w/o load	≤100 mA
Pulses per revolution	100 … 5000
Phase shift	90 ° ±20°
Duty cycle	40…60 %
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤120 kHz ≤300 kHz (on request)
Output signals	K1, K2, K0 + inverted Error output (option EMS)
Output stages	HTL-P (power linedriver) TTL/RS422
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL

Technical data - mechanical design

Size (flange)	ø115 mm
Shaft type	ø10...11 mm solid shaft
Admitted shaft load	≤200 N axial ≤300 N radial

Technical data - mechanical design

Flange	EURO flange B10
Protection EN 60529	IP 66
Operating speed	≤10000 rpm (mechanical)
Starting torque	≤6 Ncm
Rotor moment of inertia	160 gcm²
Material	Housing: aluminium die-cast Shaft: stainless steel
Operating temperature	-30...+100 °C -25...+100 °C (>3072 pulses)
Resistance	IEC 60068-2-6 Vibration 10 g, 10-2000 Hz IEC 60068-2-27 Shock 100 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
Explosion protection	II 3 G Ex ec IIC T4 Gc (gas) II 3 D Ex tc IIIB T135°C Dc (dust) (only with option ATEX)
Connection	Flange connector M23, 12-pin Mating connector
Weight approx.	700 g

Optional

- Function control with EMS (Enhanced Monitoring System)
- Angle flange-connector

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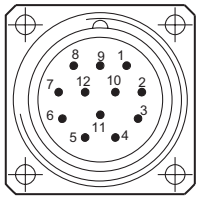
Terminal assignment

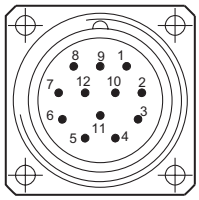
View A *(see dimension)*
Assignment flange connector



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

Option EMS: View A *(see dimension)*
Assignment flange connector



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

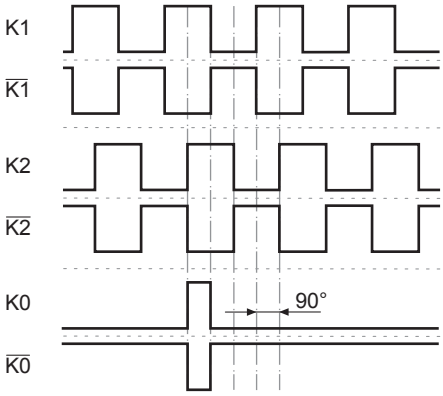
Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	$\overline{Err}$
8	K2
9	0V (⊥) @ $\overline{Err}$
10	0V (⊥)
11	dnu
12	+UB

Terminal significance

+UB	Voltage supply
0V (⊥)	Ground
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
$\overline{Err}$	Error output (option EMS)
dnu	Do not use

Output signals

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



Option EMS: Status LED / error output

Flash light red*	Error of signal sequenze, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output transistors (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or wrong connection (Error output = LOW)

* Only at rotating device

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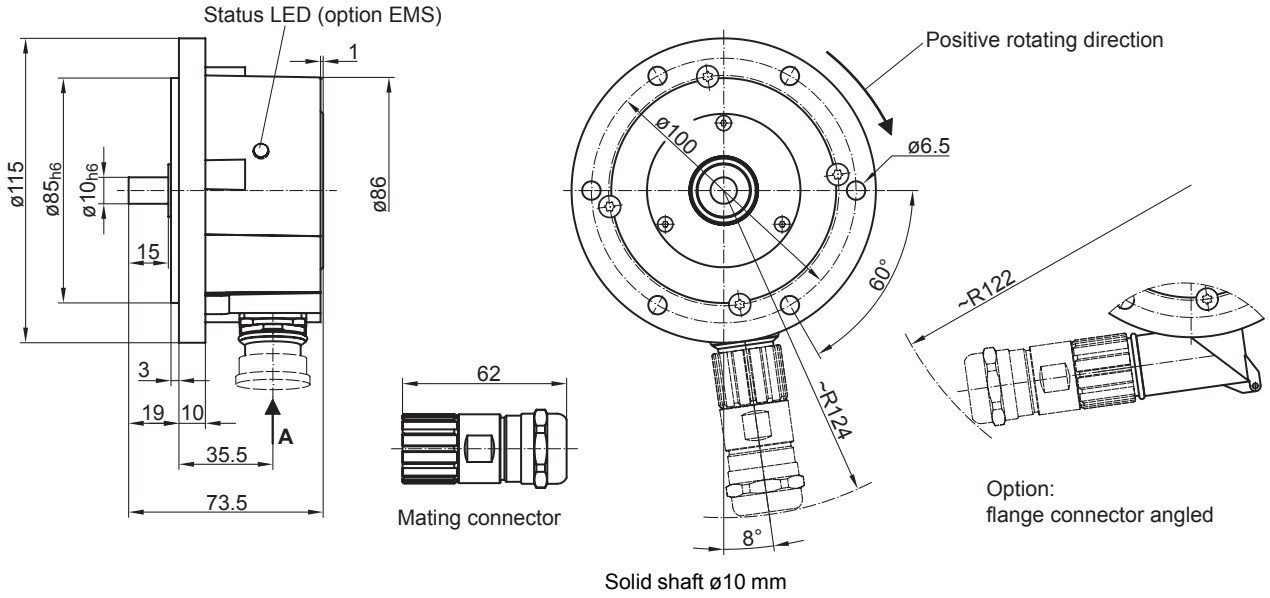
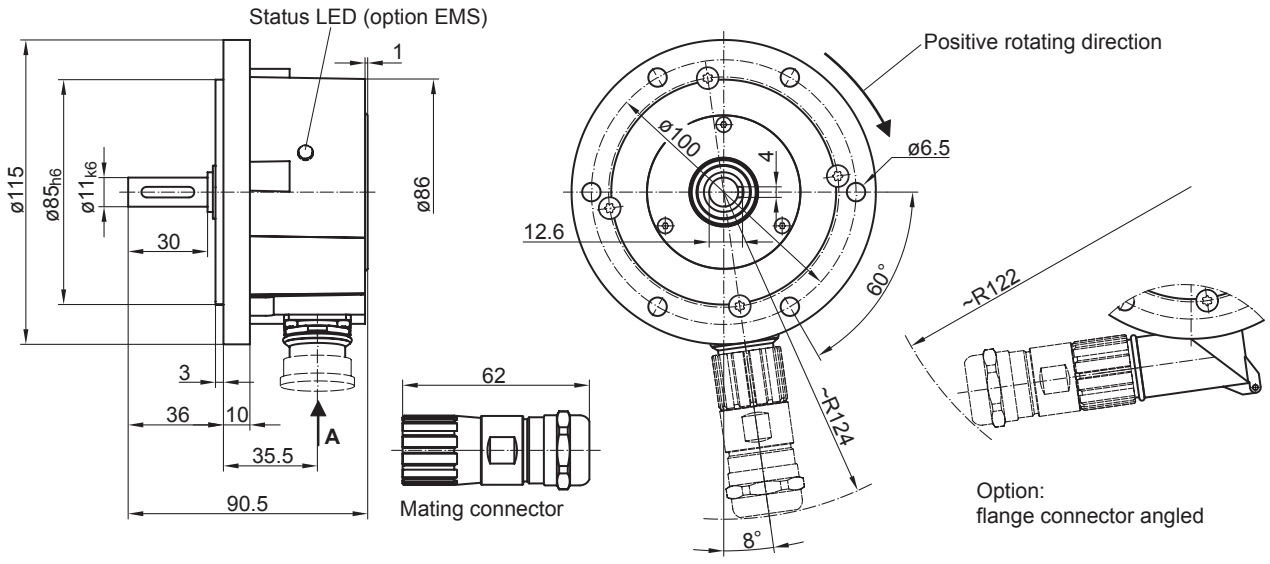
Dimensions



Solid shaft ø10 mm



Solid shaft ø11 mm

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100...5000 pulses per revolution

Ordering reference

	FOG9	##	DN	####	###
Product					
Incremental encoder	FOG9				
EMS - Enhanced Monitoring System					
Without EMS					
With EMS		.2			
Output signals					
K1, K2, K0			DN		
Pulse number(1)					
100				100	
120				120	
128				128	
180				180	
192				192	
200				200	
250				250	
256				256	
300				300	
360				360	
400				400	
500				500	
512				512	
600				600	
720				720	
900				900	
1000				1000	
1024				1024	
1200				1200	
1250				1250	
2048				2048	
2500				2500	
3072				3072	
4096				4096	
5000				5000	
Voltage supply / output stage					
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

Mounting accessories	
	Spring disk coupling K 35 (shaft ø6...12 mm)
	Spring disk coupling K 50 (shaft ø11...16 mm)
	Spring disk coupling K 60 (shaft ø11...22 mm)

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