

INCREMENTAL ENCODERS

G 58



Main Features

- Compact and heavy-duty industrial model
- 0 - 300 kHz frequency range
- Housing 58 mm Ø
- Shaft 6 or 10 mm Ø
- Resolution Max. 9000 impulses per revolution
- Power supply 5 V and 8 ...30 V
- Optional Short circuit protection

Applications

- Sensing of
- Angles
 - Distances
 - Tracks
 - Inclinations
 - Differences between two or more axes

Mechanical Structure

- Aluminum chrome housing
- Aluminum chrome mainframe
- Antimagnetic stainless steel shaft
- Precision bearings

Electrical Features

- GaAlAs Infrared light diode
- Optional line driver, push-pull or TTL output circuit
- Highly integrated circuit in SMD-Technology

Standard-Types

Type	Incre. / Rev.	Output	Connector or cable	Supply voltage
G58 LS KS BI-1024-521-24	1024	Push-pull	Connector radial	24 V
G58 LS LD BI-1024-521-15	1024	Line driver	Connector radial	8 - 15 V
G58 HS KS BI-4096-520-24	4096	Push-pull	Connector axial	8 - 30 V

TECHNICAL DATA

G 58

Electrical Data

Power Supply	5 V ± 5% (all versions) 8-30 V (15 V max. for LD)
Power Consumption	Max. 180 mA (at no load)
Output-frequency range	0 - 150 kHz (for LD-version 5V: up to 300 kHz)
max. load per output channel	50 mA
Recommended line-receiver	DS 88C20 for LD-version 8 -15 V DS 8820 for LD-version 5 V
Connection	Connector or cable, 1m long

Mechanical Data

	Shaft Ø6	Shaft Ø10
Shaft loading	Axial 10 N, radial 20 N	Axial 80 N, radial 120 N
Starting torque	0,007 Nm max.	0,01 Nm max.
Rotor inertia	$1,4 \cdot 10^{-6}$ kgm ²	$1,7 \cdot 10^{-6}$ kgm ²
Lifetime	10 ⁹ revolutions	10 ⁹ revolutions
RPM	Max. 12.000 min ⁻¹	Max. 12.000 min ⁻¹
Shock (nom.)	≤ 1000 m/s ² , 6 ms	
Vibration (nom.)	≤ 100 m/s ²	

Environmental Conditions

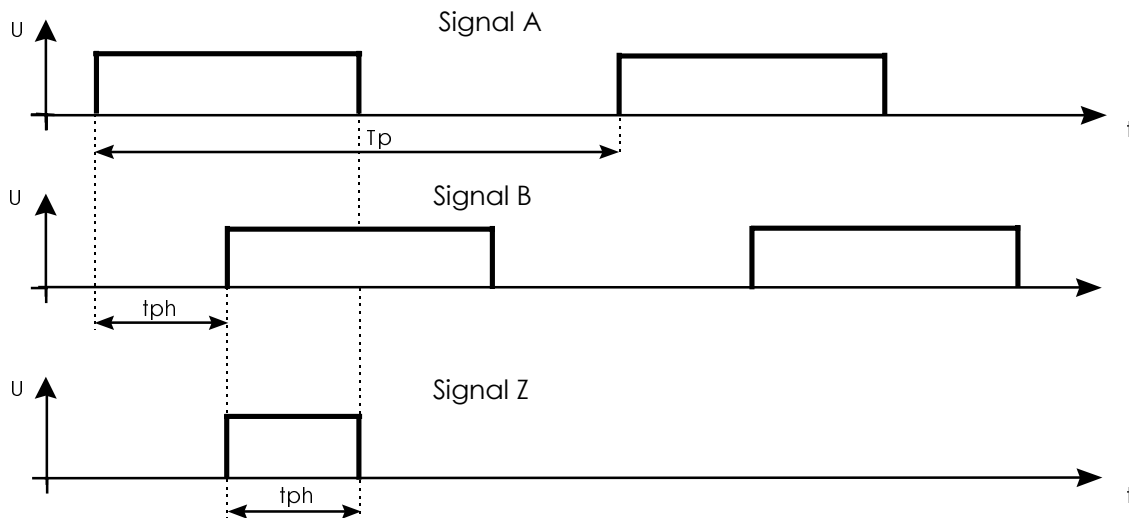
Operating temperature	0 °C to + 70 °C
Storage temperature	- 25 °C to + 80 °C
Humidity	98 % (without liquid state)
Protection class DIN 40 050	IP 64

INTERFACE

G 58

Incremental Encoder Interface

The encoder provides two rectangle-impulses, which are 90 degrees phase shifted and a reference signal. The direction recognition could be made by a logic connection of both rectangle impulses signal A and signal B.

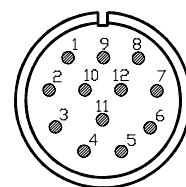


Signal A: square wave channel A, increment mark
 Signal B: square wave channel B, increment mark
 Signal Z: square wave channel Z, reference mark

Tp: period
 Tph: 90° electrical phase shift

Electrical Interface

Function	Output Circuit			
	TL/KS		LD	
	12 pin circular plug Pin	open cable	12 pin circular plug Pin	open cable
A	5	green	5	brown
\bar{A}	-	-	6	green
B	8	yellow	8	grey
\bar{B}	-	-	1	pink
Z	3	grey	3	red
\bar{Z}	-	-	4	black
+ U _b	12	pink	12	blue
U _b Sensor	2	brown	2	violet
0 Volt	10	white	10	white
0 Volt	11	blue	11	yellow
Housing	9	shield	9	shield



Pinning G
(Male)

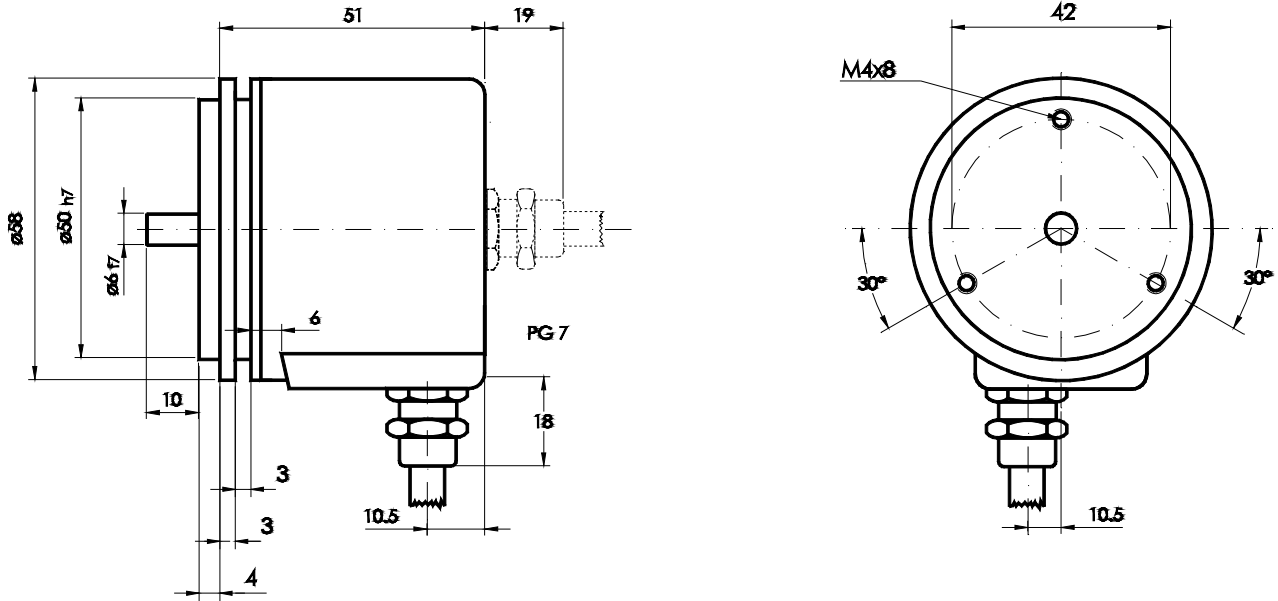
MECHANICAL DRAWINGS

G 58 LS

Synchro-Flange

(6mm)

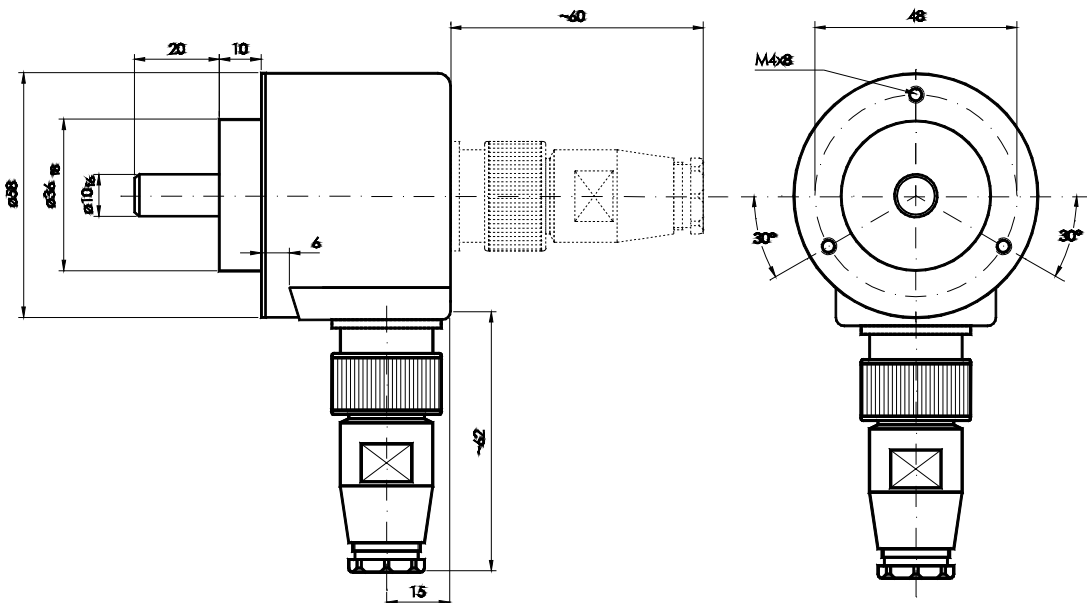
Radial or axial cable exit



Clamp Flange

Radial or axial cable exit

12 pin circular connector (cable outlet: 6-9mm)



MODELS / ORDERING DESCRIPTION

G 58

Description	Type Key												
Incremental angular encoder	G					-		-				-	
Diameter in mm	58												
Flange	Clamp flange (shaft = 10 mm Ø)		HS										
	Synchro flange (shaft = 6 mm Ø)		LS										
Interface	Push-pull with short circuit protection			KS									
	TTL			TL									
	Line driver			LD									
Channels	Channel A and B (90° phase shifted)			BI									
	Only channel B			IN									
No. of increments per revolution	For possible increments see below						XXXX						
Zero index	Without									0			
	With (preferred version)									5			
Round flange	For LS version									2			
	For HS version									3			
	For HS version									5			
Connector-/ cable exit	Connector, axial									0			
	Connector, radial									1			
	Cable, axial									2			
	Cable, radial									3			
	Cable and connector, radial									4			
	Cable and connector, axial									5			
Power supply	5 V ± 5%												05
	8 - 15 V DC for LD version												15
	8 - 30 V DC for KS and TL version												24
	8 - 30 V DC for LD version with clamp flange												24AZ
	8 - 30 V DC for LD version with synchro flange												24BC

Further models on request.

FRABA GmbH does not resume responsibility for technical inaccuracies or omissions. Specifications are subject to change without notice.

Available resolutions:

Increments/revolution: : 50, 100, 125, 128, 150, 180, 190, 200, 240, 250, 256, 300, 350, 360,
 : 400, 500, 512, 600, 625, 720, 800, 900, 1000, 1024, 1125, 1130,
 : 1152, 1200, 1250, 1270, 1440, 1500, 1600, 1800, 2000, 2048, 2160,
 : 2500, 2540, 3600, 4000, 4096, 4490, 5000, 9000, 10000