

Incremental Rotary Encoder G24

Shaft: Type S



- Housing diameter: 24 mm
- Shaft: 4 ... 6 mm; M6
- Hollow shaft: 4mm
- Line counts: 10 ... 512
- Output signals: RS422, PP, TTL, OC
- Connector: axial or radial

Hollow Shaft: Type W



Mechanical Data

G24	Shaft	Hollow shaft
	Type S	Type W
Shaft / Hollow shaft	4 mm	4 mm
Weight	ca. 50 g	ca. 50 g
Accuracy	$< \pm \frac{360^\circ}{\text{Line counts} \times 20}$	$< \pm \frac{360^\circ}{\text{Line counts} \times 20}$
Mech. permissible speed	max. 12.000 min ⁻¹	max. 12.000 min ⁻¹
Starting torque (25°C)	< 0,001 Nm	< 0,001 Nm
Shaft load at 12.000 min ⁻¹	5 N axial; 3 N radial higher upon request	5 N axial; 3 N radial higher upon request
Rotor inertia	0,1 x 10 ⁻⁶ kgm ²	0,3 x 10 ⁻⁶ kgm ²
Vibration	100 m/s ² ; higher upon request	100 m/s ² ; higher upon request
Shock	1000 m/s ² ; higher upon request	1000 m/s ² ; higher upon request
Operating temperature	-40°C ... +85°C	-40°C ... +85°C
Protection class	IP 54; upon request: IP 64, IP 66	IP 54; upon request: IP 64, IP 66

Line Counts

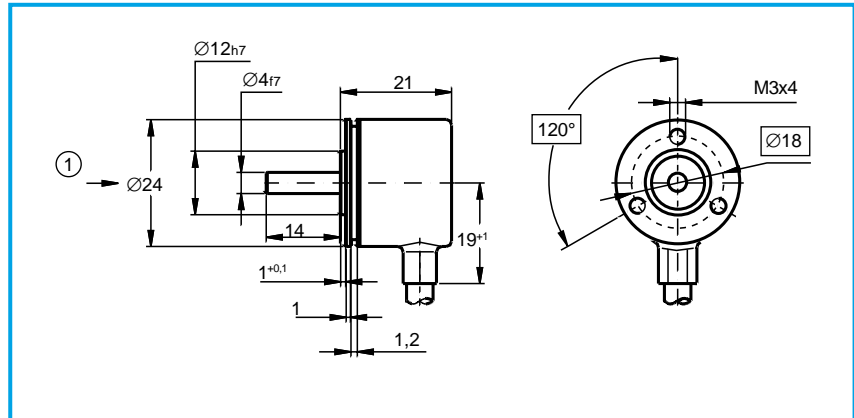
10	50	100	128	200	250	256	360	512	others upon request
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Dimensions (mm)

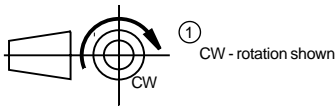
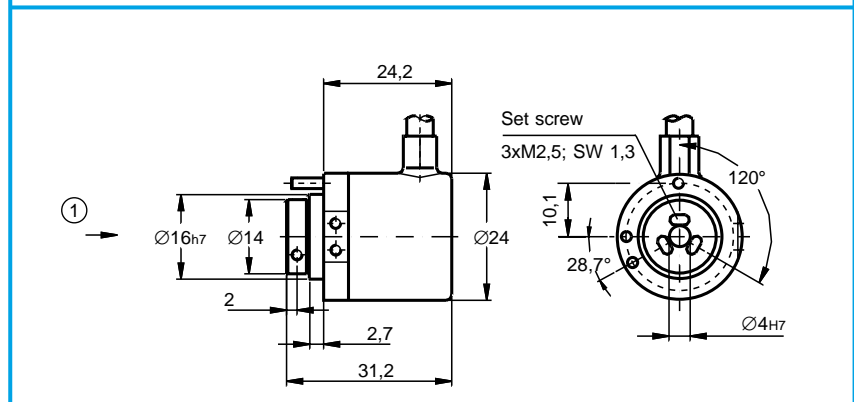
G 24 S

- high vibration capability
- cable output: axial or radial
- optional: Cablework



G 24 W

- cable output: axial or radial
- optional: torque coupling



Electrical Data

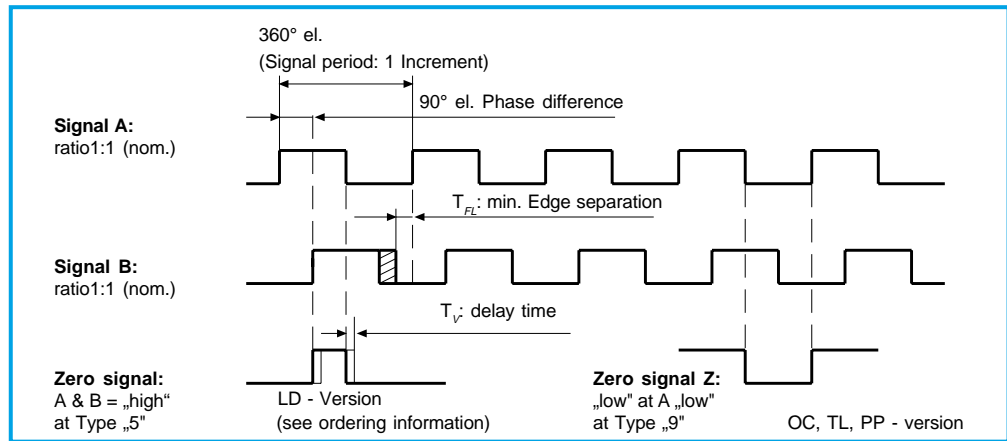
G24	Type S	Type W
Supply voltage	5 V ± 5%: LD 5 ... 24 V: TL, OC 8 ... 24 V: PP	5 V ± 5%: LD 5 ... 24 V: TL, OC 8 ... 24 V: PP
Current requirement (without load)	max. 25 mA: TL, OC max. 30 mA: LD, PP	max. 25 mA: TL, OC max. 30 mA: LD, PP
Output load	± 20 mA (RS422): LD 25 mA: OC 25 mA (4,7 kOhm): TL 50 mA: PP	± 20 mA (RS422): LD 25 mA: OC 25 mA (4,7 kOhm): TL 50 mA: PP
Output frequency	0 ... 100 kHz: PP, TL, OC 0 ... 300 kHz: LD	0 ... 100 kHz: PP, TL, OC 0 ... 300 kHz: LD
Cable length	max. 30 m: PP, TL, OC max. 50 m: LD	max. 30 m: PP, TL, OC max. 50 m: LD
Zero index	5 = Z „high“ if A + B „high“: LD 9 = Z „low“ if A „low“: PP, TL, OC others upon request	5 = Z „high“ if A + B „high“: LD 9 = Z „low“ if A „low“: PP, TL, OC others upon request

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Output Signals

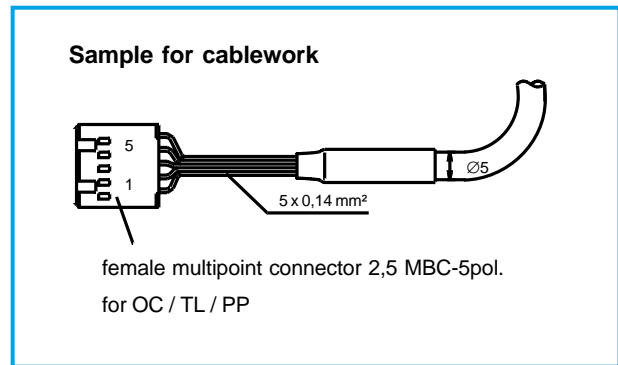
Version:

- LD = Line driver RS422
- PP = Push pull
- TL = TTL compatible
- OC = Open collector



Connector- Terminal and Cable Designation

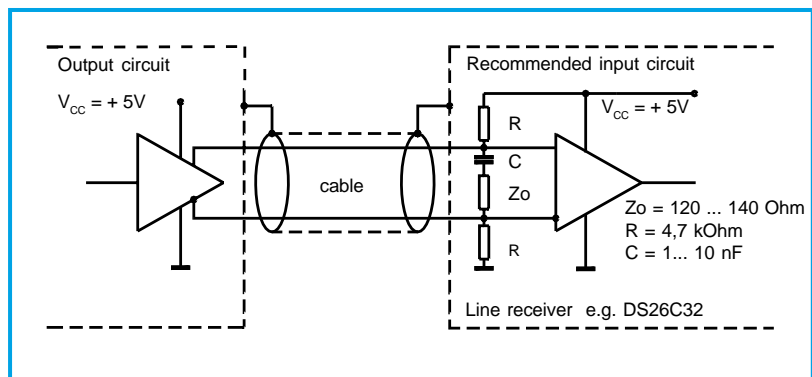
G 24 S, W	Output circuit		
	OC/TL/PP	LD (RS422)	
Function / Signal	5-pin	Cable Pur 10 x 0,14	Cable Pur 10 x 0,14
Signal A	2	green	green
Signal \bar{A}	-	-	blue
Signal B	4	yellow	yellow
Signal \bar{B}	-	-	black
Signal Z	3	grey	grey
Signal \bar{Z}	-	-	pink
V_{CC}	5	brown	brown
$V_{CC\ Sense}$	-	-	-
0 Volts	1	white	white
0 Volts _{Sense}	-	-	-
Shield	-	-	white-blue



Recommended input circuitry of subsequent electronics

LD: Line driver RS 422 A

- Operating voltage: 5 V \pm 5 %
- Current requirement: max. 30 mA (without load)
- Output signals: A, \bar{A} , B, \bar{B} , Z, \bar{Z}
- Max. Output frequency: 300 kHz
- Min. edge separation: $T_{FL} \geq 0,25 \mu s$ (400 kHz)
- Level (RS 422): $U_H \geq 2,5 V$ ($I_H = -20 mA$)
 $U_L \leq 0,5 V$ ($I_L = 20 mA$)
- Max. current load cap.: $I_{max} = \pm 20 mA$ per Output
- Delay time: $T_V \leq 50 ns$
- Switching times: rise / fall times: $\leq 100 ns$
- Cable length: max. 50 m
- Operating temperature: -40 °C ... +85 °C



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Ordering information	G	24	X	X	XX XX	XXXX	-	X	X	X	-	XX
	G	24	3	4	5.1 5.2	6	-	7	8	9	-	10
G	Incremental Rotary Encoder											
24	Model series											
3	Mechanical specification S = Type S shaft W = Type W hollow shaft (blind hole)											
4	Shaft or hollow shaft configuration R = 4 mm (standard) W = 5 mm S = 6 mm											
5.1	Output circuit LD = Line driver; RS422 PP = Push pull TL = TTL-compatible OC = Open collector											
5.2	Output channels BI = channel A and B IN = channel B only others upon request											
6	Line counts 10 50 100 128 200 250 256 360 512											
7	Zero Index Z 5 = Z „high“ if A + B „high“ (for LD only) 9 = Z „low“ if A „low“ (for OC, TL, PP only) others upon request											
8	Flange Type S: 2 = servo Type W: 3 = round											
9	Connector or cable output 2 = cable axial (with PG) 4 = cable radial with connector 3 = cable radial (with tubular rivet) 5 = cable axial with connector others upon request											
10	Supply voltage 05 = 5 Volts 24 = 8 ... 24 Volts											

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