

GE244

Solid shaft with clamping flange, stainless steel housing
Optical singleturn encoders 14 bit

Overview

- Encoder singleturn / SSI
- Stainless steel design V4A
- Optical sensing method
- Resolution: max. 14 bit
- Clamping flange
- Extreme resistance to shock and vibration
- Electronic setting of zero point
- Available with additional incremental output
- Viton sealing resistant against chemical agents



Technical data

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA (24 VDC)
Initializing time typ.	20 ms after power on
Interface	SSI Incremental A 90° B (optional)
Function	Singleturn
Steps per revolution	≤16384 / 14 bit
Absolute accuracy	±0.025 °
Sensing method	Optical
Code	Gray or binary
Code sequence	CW/CCW coded by connection
Inputs	SSI clock Control signals UP/DOWN inv. and zero
Output stages	SSI data: linedriver RS485 Diagnostic outputs push-pull Incremental: push-pull or linedriver RS422
Incremental output	2048 pulses A90°B + inverted
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-4
Diagnostic function	Self-diagnosis
Approval	UL approval / E63076

Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø10 mm solid shaft
Flange	Clamping flange
Protection EN 60529	IP 67
Operating speed	≤10000 rpm (mechanical) ≤6000 rpm (electric)
Starting torque	≤0.03 Nm (+25 °C)
Rotor moment of inertia	14.5 gcm ²
Admitted shaft load	≤20 N axial ≤40 N radial
Material	Housing: stainless steel 1.4305 or 1.4404 Flange: stainless steel 1.4305 or 1.4404
Operating temperature	-25...+85 °C -40...+85 °C (optional)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration ±0.75 mm - 10-58 Hz 10 g - 58-2000 Hz EN 60068-2-27 Shock 200 g, 6 ms
Weight approx.	600 g
Connection	Connector M23, 12-pin

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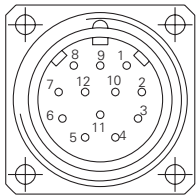
Terminal assignment

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Connector	Core colour	Assignment
Pin 1	brown	UB
Pin 2	black	GND
Pin 3	blue	Clock+
Pin 4	beige	Data+
Pin 5	green	Zero setting
Pin 6	yellow	Data-
Pin 7	violet	Clock-
Pin 8	brown/yellow	UBminOK inv.
Pin 9	pink	UP/DOWN inv.
Pin 10	black/yellow	–
Pin 11-12	–	–

GE244 with incremental tracks

Connector	Core colour	Assignment
Pin 1	brown	UB
Pin 2	white	GND
Pin 3	blue	Clock+
Pin 4	green	Data+
Pin 5	grey	Zero setting
Pin 6	yellow	Data-
Pin 7	red	Clock-
Pin 8	red/blue	Track B inv.
Pin 9	pink	UP/DOWN inv.
Pin 10	violet	Track A inv.
Pin 11	black	Track A
Pin 12	grey/pink	Track B



Please use cores twisted in pairs (for example clock+ / clock-) for extension cables of more than 10 m length.

Terminal significance

UB	Encoder voltage supply.
GND	Encoder ground connection relating to UB.
Data+/Data-	Differential SSI data output.
Clock+/Clock-	Differential SSI clock input. Optocoupler or RS422 input.
Zero setting	Input for setting a zero point anywhere within the encoder resolution. The zero setting operation is triggered by a High impulse and has to be in line with the selected direction of rotation (UP/DOWN inv.). Connect to GND after setting operation for maximum interference immunity. Impulse duration ≥ 100 ms.
UBminOK inv.	Diagnostic output. Level low indicates the operating voltage has dropped below the minimum limit.
UP/DOWN inv.	UP/DOWN inv. counting direction input. This input is standard on High. UP/DOWN inv. means ascending output data with clockwise shaft rotation when looking at flange. UP/DOWN inv.-Low means ascending values with counterclockwise shaft rotation when looking at flange.
Incremental Outputs	Incremental tracks A 90° B and inverted.

Trigger level

SSI	Circuit
SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485
Control inputs	Input circuit
Input level High	>0.7 UB
Input level Low	<0.3 UB
Input resistance	10 k Ω

Diagnostic output

NPN-Open Collector – 10 kΩ to UB internally connected	
Output level Low	≤0.5 V (I = 20 mA)
Load Low	≤40 mA

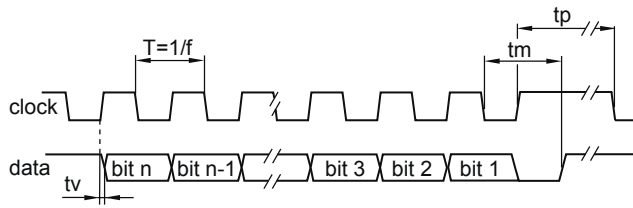
Incremental outputs	Output circuit Push-pull circuit-proof
Output level High	$>UB - 3.5$ V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
Load High / Low	<20 mA

Incremental outputs	Linedriver RS422
Output level High	>2.5 V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
Load High / Low	<20 mA

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Data transfer

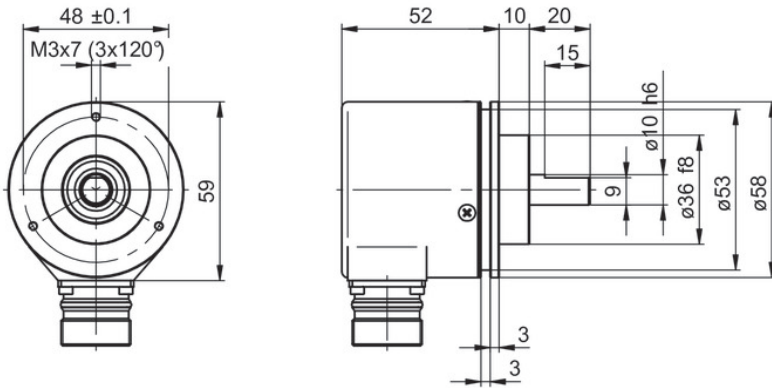


Clock frequency f	62.5...1500 kHz
Duty cycle of T	40...60 %
Delay time t_v	150 ns
Monoflop time t_m	$26 \mu s + T/2$
Clock interval t_p	30 μs

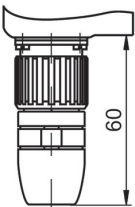
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Dimensions



GE244 - clamping flange



Connector dimensions

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Ordering reference

	GE244	.	A	##	#	##
Product	GE244					
Flange / Solid shaft						
Clamping flange / ø10 mm, IP 67			A			
Voltage supply / signals						
10...30 VDC / gray code 13 bit				30		
10...30 VDC / binary code 13 bit				32		
10...30 VDC / gray code 14 bit				90		
10...30 VDC / binary code 14 bit				92		
Connection						
Connector M23, 12-pin, radial					A1	
Connector M23, 12-pin, radial, for incremental output 14/16/17					A5	
Pulses / Incremental output						
No incremental output						05
2048 pulses / push-pull						14
2048 pulses / RS422						16
2048 periods / SinCos						17

Accessories

Mounting accessories

10125051	Mounting adaptor for encoders with clamping flange (M3) (Z 119.017)
11191971	Spring washer coupling - stainless steel D1=10 / D2=10 (Z 121.G03)

Connectors and cables

11034361	Female connector M23, 12-pin, stainless steel, without cable (Z 189.001)
11034362	Female connector M23, 12-pin, stainless steel, 10 m cable (Z 189.007)