



Incremental encoder with hollow shaft up to $\varnothing 12$ mm

Features

- Standard encoder with 58 mm dia. and end shaft or through hollow shaft
- Speed up to 6000 rpm
- Resolution up to 6000 pulses/revolution
- Signal outputs A, A inv., B, B inv., N, N inv.
- Temperature range at 5 VDC up to +100 °C

Mechanical data

Speed	Max. 6000 rpm
Moment of inertia	$1.45 \times 10^{-6} \text{ kgm}^2$
Hollow shaft	
GI330	End shaft $\varnothing 12$ mm, 22 deep with central mounting
GI331	Hollow shaft $\varnothing 12$ mm with grub screw
GI332	End shaft $\varnothing 10$, $\varnothing 12$ mm, 27 deep with clamping ring on lateral flange
GI333	Hollow shaft $\varnothing 10$, $\varnothing 12$ mm with clamping ring on lateral housing
Mounting	Torque support or coupling spring
Housing	Aluminum
Weight	Approx. 250 g

Electrical data

Operating voltage	5 VDC ± 10 % 4.75...30 VDC with reverse voltage protection
Current consumption	Max. 30 mA (w/o load), at 24 VDC Max. 60 mA (w/o load), at 5 VDC
Limit frequency	150 kHz
Output signals	Channel A, B, N + inverted
Output stages	5 VDC 4.75...30 VDC
	Line driver to RS422 Push-pull, short-circuit-proof or Line driver to RS422

GI330, GI331, GI332, GI333

Order designation GI330, GI332

Order No.	Torque pin / hollow shaft			
	GI330 central mounting			
0	Pin 15 mm / ø12 mm			
1	Pin 9.5 mm / ø12 mm			
	GI332 clamping ring on flange			
0	Pin 15 mm / ø12 mm			
1	Pin 9.5 mm / ø12 mm			
2	Pin 15 mm / ø10 mm			
3	Pin 9.5 mm / ø10 mm			
	Operating Voltage/Signals			
22	5 VDC/Line driver RS422			
70	4.75...30 VDC/Push-pull + inv.			
72	4.75...30 VDC/Line driver RS422			
	Connection			
C3	C housing plug, 12-pin, radial			
41	Cable 1 m, radial			
	Pulse No. / Order No.			
	Pulse	No.	Pulse	No.
	5	49	500	15
	10	36	1000	22
	25	50	1024	23
	50	39	1250	24
	60	40	1500	26
	100	41	2000	28
	128	57	2500	30
	200	06	3600	31
	250	09	4096	34
	360	13	5000	35
	400	14		

Additional pulse numbers on request.

GI330. □□□□□□□□ **with end shaft**
GI332. □□□□□□□□ **with end shaft**

Order designation GI331, GI333

Order No.	Torque pin / hollow shaft			
	GI331 grub screw			
0	Pin 15 mm / ø12 mm			
1	Pin 9.5 mm / ø12 mm			
	GI333 clamping ring on housing			
0	Pin 15 mm / ø12 mm			
1	Pin 9.5 mm / ø12 mm			
2	Pin 15 mm / ø10 mm			
3	Pin 9.5 mm / ø10 mm			
	Operating Voltage/Signals			
22	5 VDC/Line driver RS422			
70	4.75...30 VDC/Push-pull + inv.			
72	4.75...30 VDC/Line driver RS422			
	Connection			
C3	C housing plug, 12-pin, radial			
41	Cable 1 m, radial			
	Pulse No. / Order No.			
	Pulse	No.	Pulse	No.
	5	49	500	15
	10	36	1000	22
	25	50	1024	23
	50	39	1250	24
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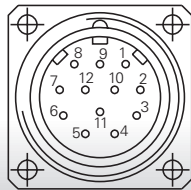
Additional pulse numbers on request.

GI331. □□□□□□□□ **with through hollow shaft**
GI333. □□□□□□□□ **with through hollow shaft**

GI330, GI331, GI332, GI333

Connection assignment

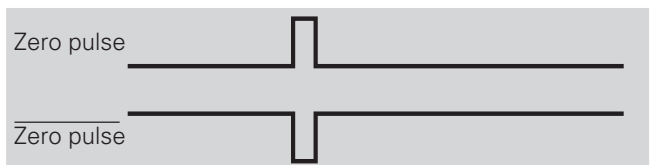
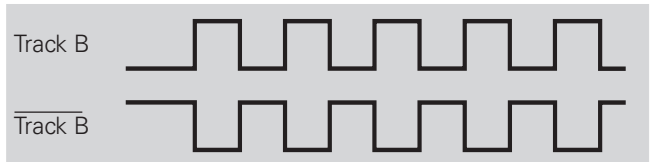
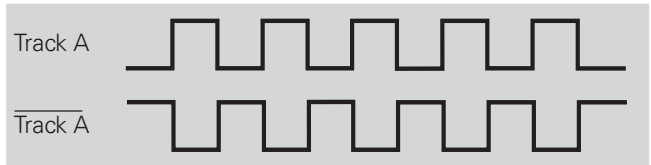
Plug	Cable color	Assignment
Pin 1	pink	Track B inv.
Pin 2	blue	UB Sense
Pin 3	red	Track N (zero pulses)
Pin 4	black	Tr. N inv. (zero pulses inv.)
Pin 5	brown	Track A
Pin 6	green	Track A inv.
Pin 7	–	–
Pin 8	gray	Track B
Pin 9	–	–
Pin 10	white/green	GND
Pin 11	white	GND Sense
Pin 12	brown/green	UB



UB Sense and GND Sense are directly connected to UB and GND respectively.
 Recommendation: Please use wires twisted in pairs for cable lengths of more 10 m or more.

Output signals

Signals with clockwise rotation when looking at the flange.



Line driver

Level High	$\geq 2.5\text{ V}$	(with $I = -20\text{ mA}$)
Level Low	$\leq 0.5\text{ V}$	(with $I = 20\text{ mA}$)
Loading High	$\leq 20\text{ mA}$	
Loading Low	$\leq 20\text{ mA}$	

Push-pull output

Level High	$\geq \text{UB} - 3\text{ V}$	(with $I = -20\text{ mA}$)
Level Low	$\leq 0.5\text{ V}$	(with $I = 20\text{ mA}$)
Loading High	$\leq 20\text{ mA}$	
Loading Low	$\leq 20\text{ mA}$	

Ambient conditions

Operating temperature	-20...+100 °C at 5 VDC -20...+85 °C at 4.75...30 VDC
Protection type	IP 54
Humidity	Max. relative humidity 95 %, non-condensing
Resistance	
Vibration	DIN EN 60068-2-6 $\leq 100\text{ m/s}^2$, 16-2000 Hz
Shock	DIN EN 60068-2-27 $\leq 1000\text{ m/s}^2$, 4 ms
Interference resistance	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

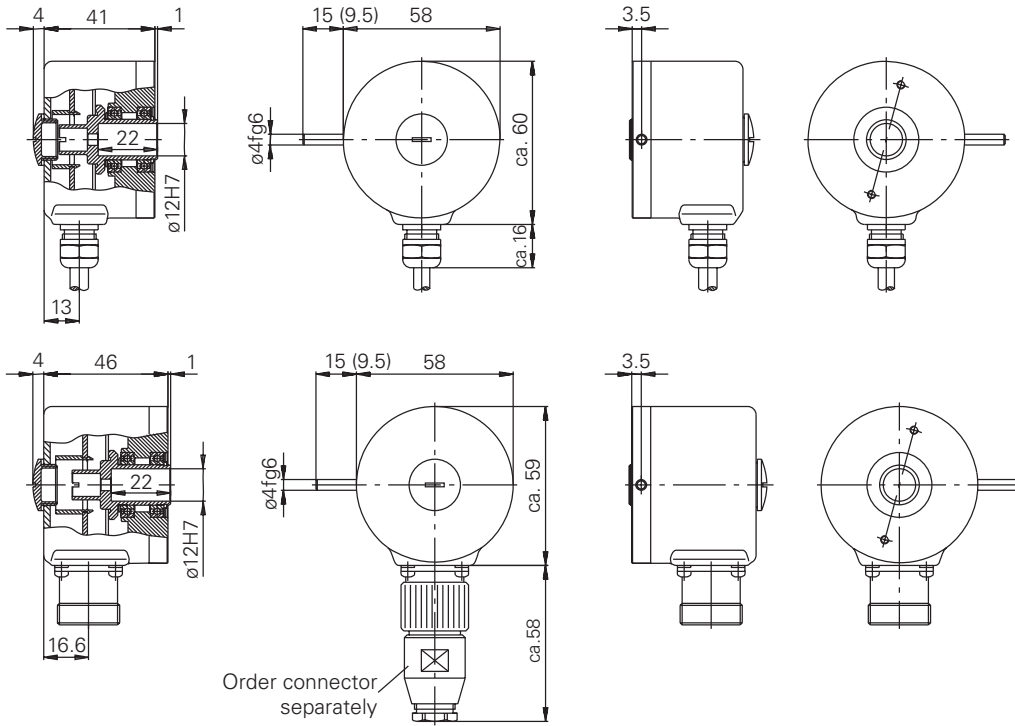
Accessories

Order No.	
Z 119.023	Coupling spring
Z 119.024	Adjustment piece for grub screw 9.5 mm
Z 119.041	Adjustment piece with rubber spring element for grub screw 15 mm
	Extension cord with connector on one end
Z 141.001	Connector without cable
Z 141.003	Connector with 2 m cable
Z 141.005	Connector with 5 m cable
Z 141.007	Connector with 10 m cable

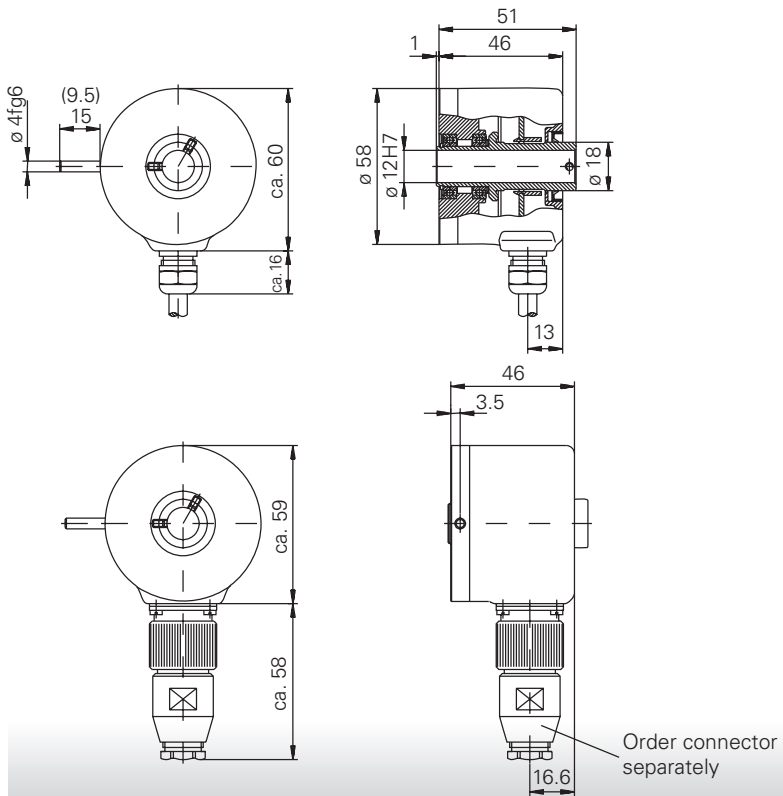
GI330, GI331, GI332, GI333

Dimensions

GI330 with end shaft and central mounting



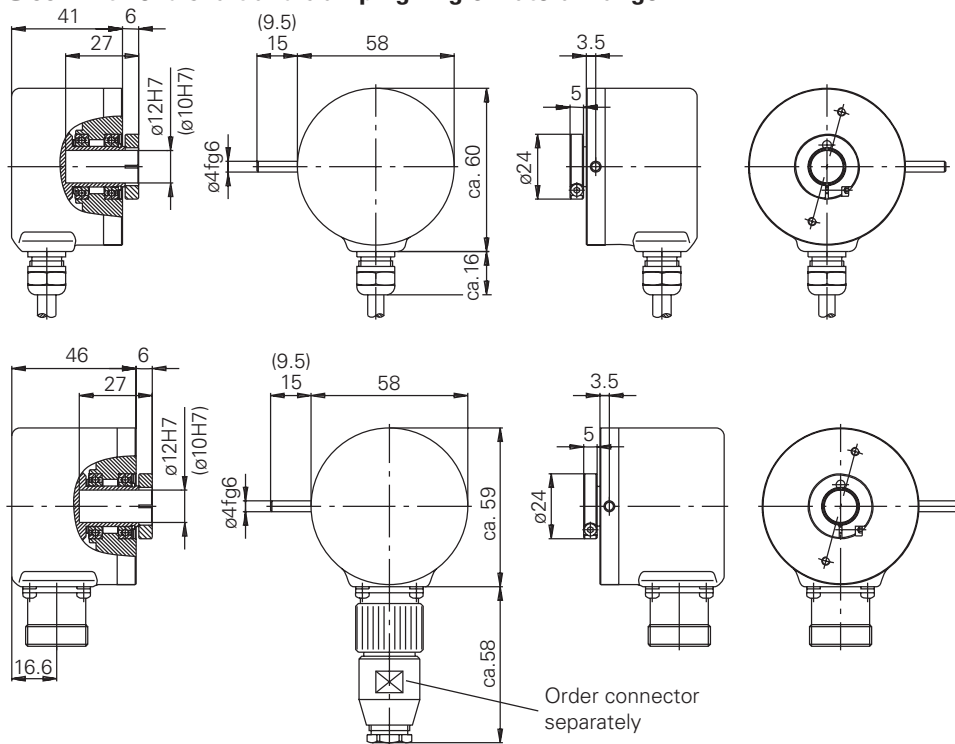
GI331 with through hollow shaft and grub screw



GI330, GI331, GI332, GI333

Dimensions

GI332 with end shaft and clamping ring on lateral flange



GI333 with through hollow shaft and clamping ring on lateral housing

