



## Incremental Encoder with hollow shaft

### Features

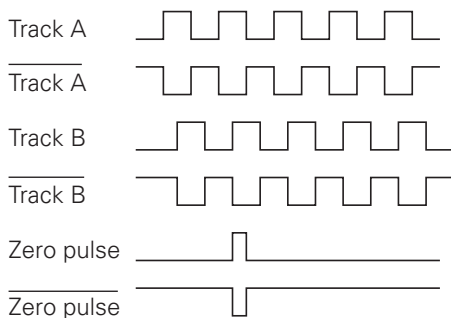
Incremental encoder with integrated OPTO-ASIC, thus high interference immunity  
 Speed up to 6,000 RPM  
 Resolution up to 6,000 pulses / revolution  
 Signal outputs A, A inv., B, B inv., N, N inv.  
 Temperature range for 5 VDC up to +100 °C

### Electrical data

Supply voltage	5 VDC $\pm$ 10 % 10...30 VDC with reverse voltage protection
Current consumption	Max. 60 mA (w/o load) for 24 VDC Max. 30 mA (w/o load) for 5 VDC
Max. operating freq.	150 kHz
Output signals	Channel A, B, N + inverted
Output stages	5 VDC 10...30 VDC
Electric connector	Line driver to RS422 Push-pull outp., short-circuit-protect. The electric connector must not be plugged on or removed whilst under voltage.

### Output signals

Signals with clockwise sense of rotation when looking at the flange



### Line driver (5 VDC)

Level High	$\geq 2.5$ V	(with I = -20 mA)
Level Low	$\leq 0.5$ V	(with I = 20 mA)
Load High	$\leq 20$ mA	
Load Low	$\leq 20$ mA	

### Push-pull output (10...30 VDC)

Level High	$\geq U_B - 3$ V	(with I = -20 mA)
Level Low	$\leq 2.5$ V	(with I = 20 mA)
Load High	$\leq 40$ mA	
Load Low	$\leq 40$ mA	

### Mechanical data

RPM value	Max. 6,000 RPM
Starting torque	
w/o seal (IP54)	< 0.010 Nm
with seal (IP65)	< 0.015 Nm
Shaft loading	
axial	< 10 N
radial	< 20 N
Inertia torque	$1.45 \times 10^{-6}$ kgm <sup>2</sup>
Hollow shaft	
hollow shaft	$\varnothing$ 12 mm
pocket hole	$\varnothing$ 12 mm / 22 mm deep
Mounting	Torque support
Housing material	Aluminium
Weight	Approximately 250 g

# GI330, GI331

## Order designation GI330

Order

- 0 Torque support 15 mm
- 1 Torque support 9.5 mm for adjustment piece

Voltage / Signals

- 22 5 VDC / Line driver RS422
- 60 10...30 VDC push-pull output + inv.

Connection

- C3 C-plug with 12 pins, radial
- 41 Cable 1 m (10...30 VDC), radial
- 61 Cable 1 m (5 VDC), radial

Pulses / Order no.

Pul.	No.	Pul.	No.
5	49	400	14
10	36	500	15
25	50	1000	22
50	39	1024	23
60	40	1250	24
100	41	1500	26
128	57	2000	28
200	06	2500	30
250	09	3600	31
360	13	5000	35

Further pulse numbers upon request

**GI330.** □ □ □ □ □ □ **pocket hole**

## Order designation GI331

Order

- 0 Torque support 15 mm
- 1 Torque support 9.5 mm for adjustment piece

Voltage / Signals

- 22 5 VDC / Line driver RS422
- 60 10...30 VDC push-pull outp. + inv.
- 70 4.75...30 VDC push-pull outp. + inv.

Connection

- C3 C-plug with 12 pins, radial
- 41 Cable 1 m (10...30 VDC), radial

Pulses / Order no.

Pul.	No.	Pul.	No.
5	49	400	14
10	36	500	15
25	50	1000	22
50	39	1024	23
60	40	1250	24
100	41	1500	26
128	57	2000	28
200	06	2500	30
250	09	3600	31
360	13	5000	35

Further pulse numbers upon request

**GI331.** □ □ □ □ □ □ **through hollow shaft**

# GI330, GI331

## Ambient conditions

Ambient temperature	-20...+100 °C	for 5 VDC
	-20...+70 °C	for 10...30 VDC
Storage temperature	-20...+100 °C	
Protection to	IP 54	
Relative humidity	Max. 95 %, non-condensing	
Endurance		
Vibration	IEC 68 Section 2 - 6 ≤100 m/s <sup>2</sup> /16-2000Hz	
Shock	IEC 68 Section 2 - 27 ≤1000 m/s <sup>2</sup> / 4ms	
Interference immunity	EN 50082-2 EN 61000-4 -2 to 4 Severity grade 3	
Emitted Interference	EN 50081-2	

## Pin assignment

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

Attention: UB Sense and GND Sense are directly connected to UB and/or GND

Recommendation: Please use leads twisted in pairs for cable lengths of more than 10 m

## Accessories

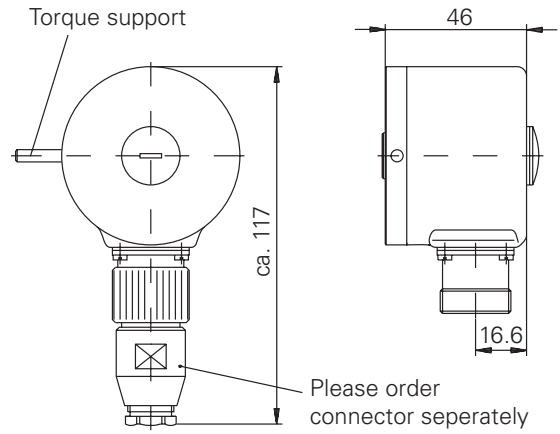
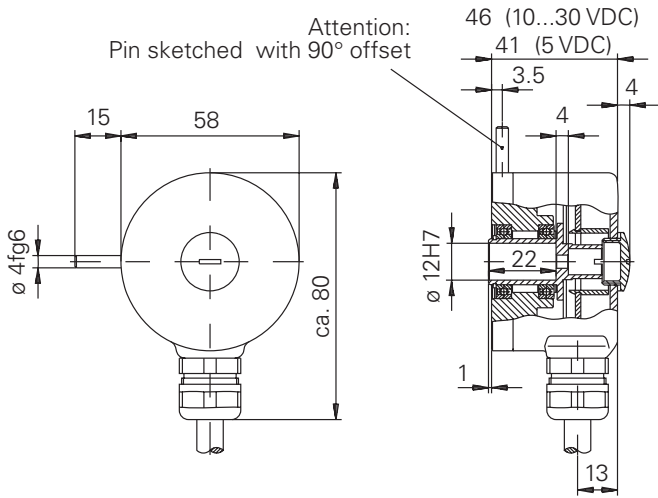
Order no.



Z 119.021	Shaft reducing socket 8 mm
Z 119.022	Shaft reducing socket 10 mm
Z 119.024	Adjustment piece

	Extension cord with connector on one side
Z 141.001	Connector without cable
Z 141.003	Connector with cable 2 m
Z 141.005	Connector with cable 5 m
Z 141.007	Connector with cable 10 m

# GI330, GI331

## Dimensions and cutout size GI330 (pocket hole)



-  1 x pan head screw DIN84 M4 x 12 galvanized
-  1 x spring washer A4 DIN137
- packed in Mini-Grip bags

## Dimensions and cutout size GI331

