

# Incremental encoders

## Solid shaft with clamping or synchro flange

### 5...6000 pulses per revolution

#### GI355, GI356



GI355 with clamping flange

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm$ 10 % 4.75...30 VDC 10...30 VDC
Reverse polarity protection	Yes (4.75...30 VDC)
Consumption w/o load	$\leq$ 30 mA (24 VDC) $\leq$ 60 mA (5 VDC)
Pulses per revolution	5...6000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	$\leq$ 150 kHz
Output signals	A 90° B, N + inverted
Output stages	Linedriver/RS422 Push-pull short-circuit proof
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Approval	UL approval / E63076

#### Features

- Encoder with solid shaft  $\varnothing$ 10 mm or  $\varnothing$ 6 mm
- Max. 6000 pulses per revolution
- Optical sensing method
- Clamping or synchro flange
- Industrial standard
- High rotation speed up to 10000 rpm

#### Optional

- Stainless steel design GE355
- ATEX-approved, see X 700
- Corrosion protection for offshore applications

#### Technical data - mechanical design

Size (flange)	$\varnothing$ 58 mm
Admitted shaft load	$\leq$ 20 N axial $\leq$ 40 N radial
Protection DIN EN 60529	IP 54 (without shaft seal), IP 65 (with shaft seal)
Operating speed	$\leq$ 10000 rpm
Starting torque	$\leq$ 0.015 Nm (+25 °C, IP 54) $\leq$ 0.03 Nm (+25 °C, IP 65)
Rotor moment of inertia	14.5 gcm <sup>2</sup>
Materials	Housing: aluminium Flange: aluminium
Operating temperature	-25...+100 °C (5 VDC) -25...+85 °C (24 VDC) -40...+85 °C (optional)
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 16-2000 Hz DIN EN 60068-2-27 Shock 200 g, 6 ms
Connection	Connector M23, 12-pin Cable 1 m
Weight approx.	250 g
<b>GI355</b>	
Shaft type	$\varnothing$ 10 mm solid shaft
Flange	Clamping flange
<b>GI356</b>	
Shaft type	$\varnothing$ 6 mm solid shaft
Flange	Synchro flange

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#### Part number

#### Clamping flange

GI355.

Pulse number - see table

Connection

- C2 Connector M23, 12-pin, axial
- C3 Connector M23, 12-pin, radial
- 31 Cable 1 m, axial
- 41 Cable 1 m, radial

Voltage supply / signals

- 22 5 VDC / linedriver RS422
- 70 4.75...30 VDC / push-pull
- 72 10...30 VDC / linedriver RS422 (5 VDC)

Flange / Solid shaft

- 0 Clamping flange / ø10 mm, IP 54
- A Clamping flange / ø10 mm, IP 65

#### Synchro flange

GI356.

Pulse number - see table

Connection

- C2 Connector M23, 12-pin, axial
- C3 Connector M23, 12-pin, radial
- 31 Cable 1 m, axial
- 41 Cable 1 m, radial

Voltage supply / signals

- 22 5 VDC / linedriver RS422
- 70 4.75...30 VDC / push-pull
- 72 10...30 VDC / linedriver RS422 (5 VDC)

Flange / Solid shaft

- 1 Synchro flange / ø6 mm, IP 54
- B Synchro flange / ø6 mm, IP 65

#### Part number (pulse number)

49 (5)	05 (180)	16 (512)	28 (2000)
36 (10)	06 (200)	17 (600)	29 (2048)
37 (20)	08 (240)	19 (720)	30 (2500)
50 (25)	09 (250)	21 (900)	47 (3000)
39 (50)	10 (256)	22 (1000)	31 (3600)
40 (60)	11 (300)	23 (1024)	34 (4096)
41 (100)	13 (360)	61 (1200)	35 (5000)
01 (120)	14 (400)	24 (1250)	48 (6000)
57 (128)	15 (500)	26 (1500)	

Other pulse numbers on request.

Example: part number 23 = 1024 pulses.

#### Accessories

##### Connectors and cables

10127371	Female connector M23, 12-pin, without cable (Z 141.001)
10166044	Female connector M23, 12-pin, 2 m cable (Z 141.003)
10124780	Female connector M23, 12-pin, 5 m cable (Z 141.005)
11034204	Female connector M23, 12-pin, 10 m cable (Z 141.007)

##### Mounting accessories for GI355

10141255	Adaptor plate for clamping flange for modification into synchro flange (Z 119.013)
10125051	Mounting adaptor for encoders with clamping flange (M3) (Z 119.017)
11034088	Adaptor plate for clamping flange, mounting by eccentric fixings (order separately) (Z 119.025)

##### Mounting accessories for GI356

10117669	Eccentric fixing, single (Z 119.006)
10117667	Mounting adaptor for encoders with synchro flange (Z 119.015)
10158124	Bearing flange for encoders with synchro flange (Z 119.035)

# Incremental encoders

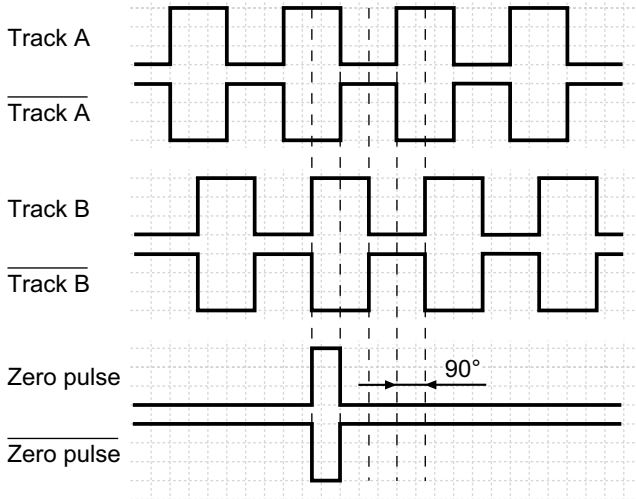
Solid shaft with clamping or synchro flange

5...6000 pulses per revolution

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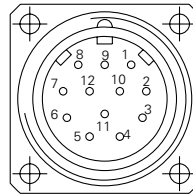
### Output signals

Clockwise rotating direction when looking at flange.



### Terminal assignment

Connector	Core colour	Assignment
Pin 1	pink	Track B inv.
Pin 2	blue	UB-Sense
Pin 3	red	Track N (zero pulse)
Pin 4	black	Track N inv. (zero pulse inv.)
Pin 5	brown	Track A
Pin 6	green	Track A inv.
Pin 7	–	–
Pin 8	grey	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 resp. GND. Please use cores twisted in pairs (for example track A / track A inv.) for extension cables of more than 10 m length.

### Trigger level

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

Outputs	Push-pull short-circuit proof
Output level High	>UB -3 V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
Load High / Low	<20 mA

# Incremental encoders

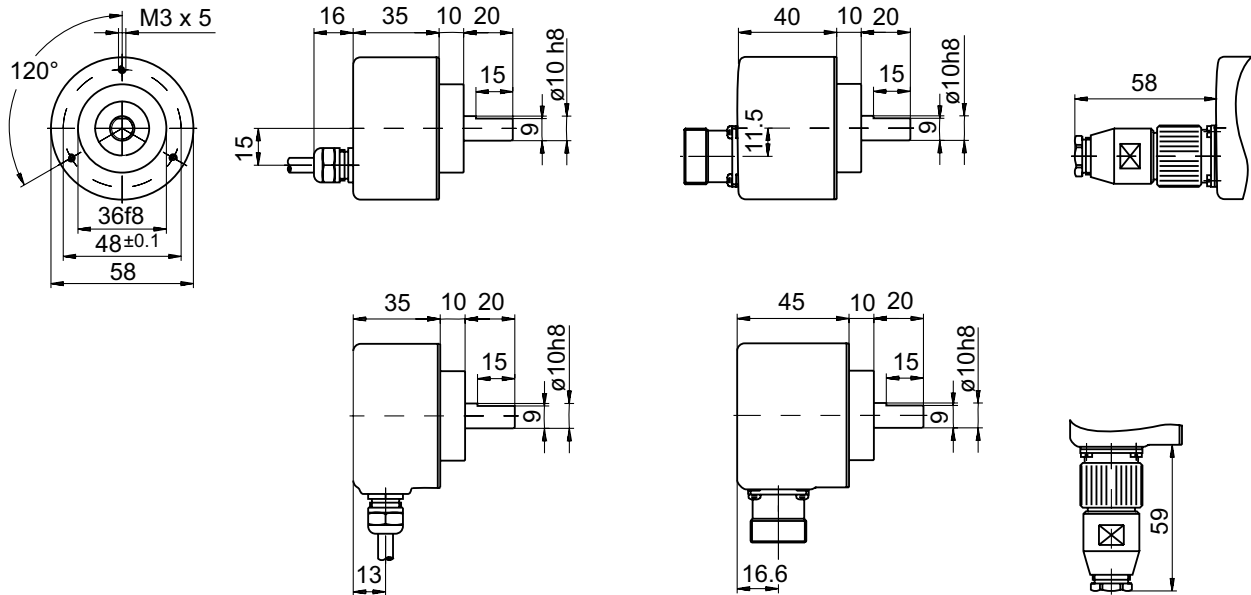
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#### Dimensions

##### GI355 - clamping flange



##### GI356 - synchro flange

