

# Incremental encoders

## Shaft with clamping or synchro flange

### Resolution 5...6000 pulses

#### GI355, GI356



GI355 with clamping flange

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm$ 10 % 4.75...30 VDC
Reverse polarity protection	Yes (4.75...30 VDC)
Consumption w/o load	$\leq$ 30 mA (24 VDC) $\leq$ 60 mA (5 VDC)
Resolution (steps/turn)	5...6000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	$\leq$ 150 kHz
Output signals	A 90° B, N + inverted
Output circuit	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 shaft  $\varnothing$ 10 mm or  $\varnothing$ 6 mm
- Resolution max. 6000 ppr
- Optical sensing
- Clamping or synchro flange
- Industrial standard
- High rotation speed max.10000 rpm
- Compact design

#### Optional

- Stainless steel design GE355
- ATEX-approved, see X 700

#### Technical data - mechanical design

Housing	$\varnothing$ 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 IP 54 $\leq$ 0.03 Nm 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)
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	$\varnothing$ 10 mm
Flange	Clamping flange
<b>GI356</b>	
Shaft	$\varnothing$ 6 mm
Flange	Synchro flange

# Incremental encoders

## Shaft with clamping or synchro flange

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**GI355, GI356**

#### Part number

##### Clamping flange

GI355.

|  
See part number (pulses)

|  
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 4.75...30 VDC / linedriver RS422 (5 VDC)

|  
Flange / Shaft

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

##### Synchro flange

GI356.

|  
See part number (pulses)

|  
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 4.75...30 VDC / linedriver RS422 (5 VDC)

|  
Flange / Shaft

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

#### Part number (pulses)

49 (5)	57 (128)	22 (1000)	30 (2500)
36 (10)	06 (200)	23 (1024)	31 (3600)
50 (25)	09 (250)	24 (1250)	34 (4096)
39 (50)	13 (360)	26 (1500)	35 (5000)
40 (60)	14 (400)	28 (2000)	48 (6000)
41 (100)	15 (500)	29 (2048)	

Other pulse numbers upon request.  
Example: order key 23 = 1024 pulses.

#### Accessories

##### Connectors and cables

Z 141.001	Female connector M23, 12-pin, less cable
Z 141.003	Female connector M23, 12-pin, 2 m cable
Z 141.005	Female connector M23, 12-pin, 5 m cable
Z 141.007	Female connector M23, 12-pin, 10 m cable

##### Mounting accessories for GI355

Z 119.013	Adaptor plate for clamping flange for modification into synchro flange
Z 119.017	Mounting angle for clamping flange
Z 119.025	Adaptor plate for clamping flange, mounting by eccentric fixings (order separately)

##### Mounting accessories for GI356

Z 119.006	Eccentric fixing, single
Z 119.015	Mounting adaptor for synchro flange
Z 119.035	Bearing flange for encoders with synchro flange

# Incremental encoders

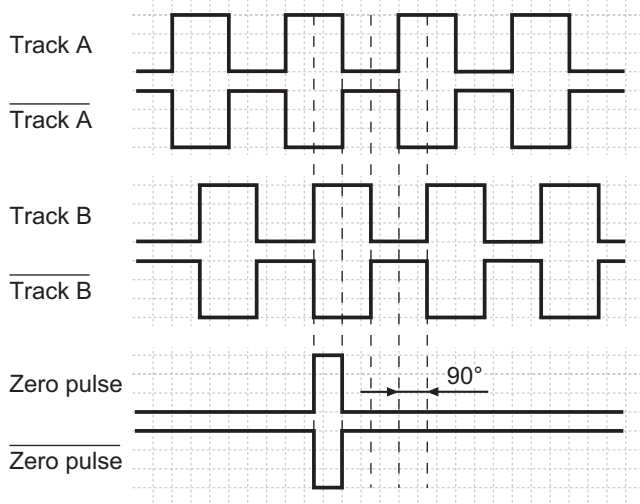
## Shaft with clamping or synchro flange

### Resolution 5...6000 pulses

#### GI355, GI356

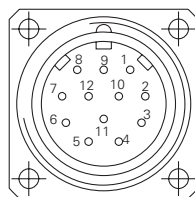
##### Output signals

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	<20 mA
Load 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	<20 mA
Load Low	<20 mA

# Incremental encoders

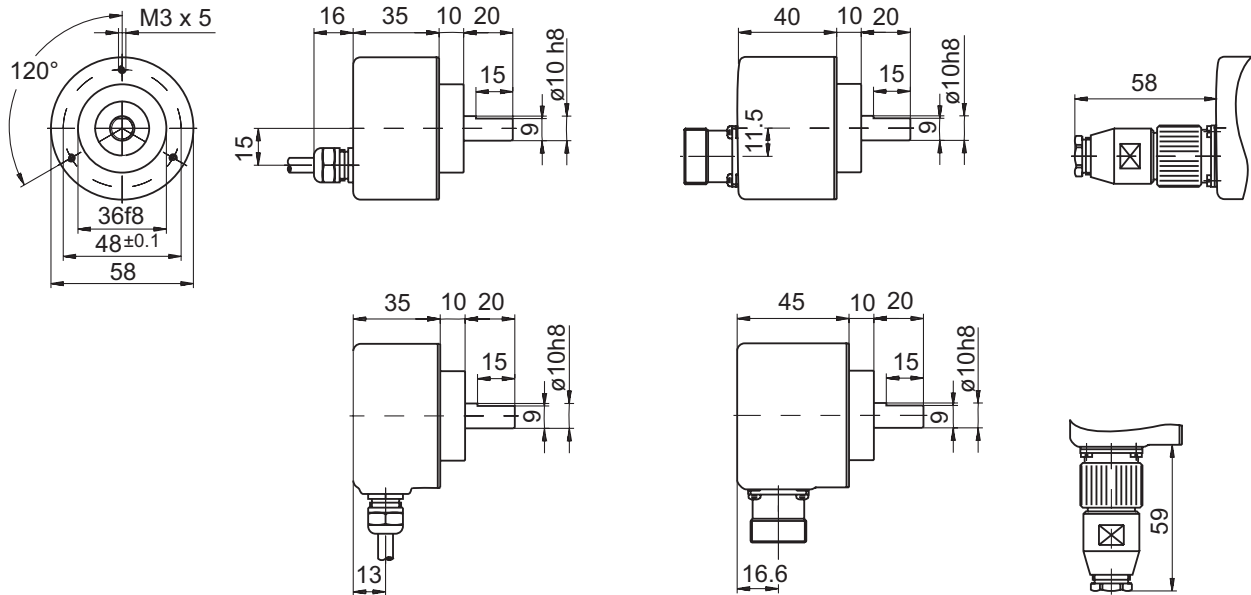
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#### Dimensions

##### GI355 - clamping flange



##### GI356 - synchro flange

