Absolute encoders - SSI

Shaft with clamping or synchro flange

Optical multiturn encoder 13 bit ST / 12 bit MT

GXP2W - SSI



GXP2W with clamping flange

Features

- **Encoder multiturn / SSI**
- **Optical sensing**
- **Resolution: singleturn 13 bit, multiturn 12 bit**
- **Clamping flange or synchro flange**
- **Encoder programming by Windows software**
- **Electronic setting to preset**
- **Resolution, code and preset programmable**
- **RS232 encoder programming interface**

Optional

- **Additional incremental signals AB + inverted**

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA (24 VDC)
Initializing time (typ.)	50 ms after power on
Interface	SSI
Steps per turn	8192 / 13 bit
Number of turns	4096 / 12 bit
Absolute accuracy	±0.025°
Sensing method	Optical
Code	Gray or binary
Code sequence	CW/CCW coded and programmable by connection
Inputs	SSI clock UP/DOWN Preset
Output circuit	SSI data linedriver RS485 Diagnostic outputs push-pull
Output current	≤50 mA
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Programming interface	RS232
Programmable parameters	Total resolution Rotating direction and code Preset and offset Zero point setting
Diagnostic functions	Self-diagnosis Code continuity check Multiturn sensing
Approval	UL approval / E63076

Technical data - mechanical design

Housing	ø58 mm
Shaft	ø10 mm (clamping flange) ø6 mm (synchro flange)
Flange	Clamping or synchro flange
Protection DIN EN 60529	IP 54 without shaft seal IP 65 with shaft seal
Operating speed	≤10000 rpm (mechanical) ≤6000 rpm (electric)
Starting torque	≤0.01 Nm IP 54 ≤0.015 Nm IP 65
Rotor moment of inertia	20 gcm²
Admitted shaft load	≤20 N axial ≤40 N radial
Materials	Housing: steel Flange: aluminium
Operating temperature	-25...+85 °C -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
Weight approx.	600 g
E-connection	Connector or cable

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GXP2W - SSI

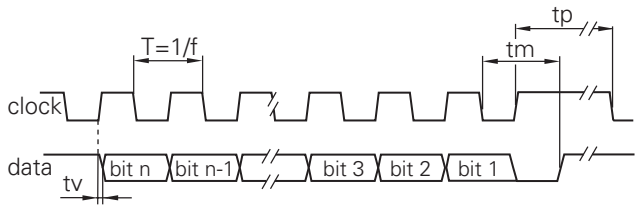
Part number

GXP2W. | | **40** | | **A2** |

E-connection
- B0 M23 connector, 16-pin axial
- B1 M23 connector, 16-pin radial
- 11 Cable 1 m, axial
- 21 Cable 1 m, radial

Flange / Shaft
- 0 Clamping flange / ø10 mm IP 54
- A Clamping flange / ø10 mm IP 65
- 1 Synchro flange / ø6 mm IP 54
- B Synchro flange / ø6 mm IP 65

Data transfer



Clock frequency f	62.5...1500 kHz
Scan ratio of T	40...60 %
Time lag tv	150 ns
Monoflop time tm	20 µs
Clock interval tp	200 µs

Accessories

Connectors and cables (page %S)

Z 131.001	Mating connector M23, 16-pin, less cable
Z 131.003	Mating connector M23, 16-pin, 2 m cable
Z 131.005	Mating connector M23, 16-pin, 5 m cable
Z 131.007	Mating connector M23, 16-pin, 10 m cable

Mounting accessories (page %S)

Z 119.006	Eccentric fixing, single
Z 119.013	Adaptor plate for clamping flange for modification into synchro flange
Z 119.015	Mounting adaptor for synchro flange
Z 119.017	Mounting angle for clamping flange
Z 119.025	Adaptor plate for clamping flange, mounting by eccentric fixings (order separately)
Z 119.035	Bearing flange for encoders with synchro flange

Programming accessories (page %S)

Z 139.004	Programming cable for SSI encoders, CD with ProGeber software and manual
Z 150.008	CD with software ProGeber & manual

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Absolute encoders - SSI

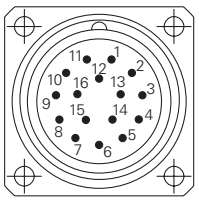
Shaft with clamping or synchro flange

Optical multiturn encoder 13 bit ST / 12 bit MT

GXP2W - SSI

Terminal significance	
UB	Encoder voltage supply.
GND	Encoder ground connection relating to UB.
Data+	Positive, serial data output of differential linedriver.
Data-	Negative, serial data output of differential linedriver.
Clock+	Positive SSI clock input. Clock+ together with clock- forms a current loop. A current of approx. 7 mA towards clock+ input means logic 1 in positive logic.
Clock-	Negative SSI clock input. Clock- together with clock+ forms a current loop. A current of approx. 7 mA towards clock- input means logic 0 in positive logic.
Preset	Preset input for setting a preset anywhere within the programmed encoder resolution. The preset operation is triggered by a High impulse and has to be in line with the selected rotating direction UP/$\overline{\text{DOWN}}$. Connect to GND for maximum interference immunity. Impulse duration $\geq$100 ms.
UP/$\overline{\text{DOWN}}$	UP/$\overline{\text{DOWN}}$ counting direction input. This input is standard on High. UP/$\overline{\text{DOWN}}$ means ascending output data with clockwise shaft rotation when looking at flange. UP/$\overline{\text{DOWN}}$-Low means ascending values with counterclockwise shaft rotation when looking at flange. The rotating direction may also be altered by programming.
TxD	Encoder transmitter output for RS232 programming interface.
RxD	Encoder receiver input for RS232 programming interface.
Outputs 1, 3, 4	Special outputs. Optional assignment to special functions.
Output 2	Output less funcion. There must not be any external circuit.
GND-PRG	Separate ground for programming interface.

Terminal assignment		
Connector	Core colour	Assignment
Pin 1	violet	Data+
Pin 2	brown/white	Data-
Pin 3	green/white	–
Pin 4	yellow/white	TxD
Pin 5	grey/white	RxD
Pin 6	pink/white	Clock+
Pin 7	blue/white	Clock-
Pin 8	red/white	Output 1
Pin 9	black/white	Output 2
Pin 10	green/brown	Output 3
Pin 11	green/grey	Output 4
Pin 12	blue	GND
Pin 13	yellow	Preset
Pin 14	brown	UP/$\overline{\text{DOWN}}$
Pin 15	red	UB
Pin 16	pink	GND-PRG



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

Trigger level	
SSI	**Circuit**
SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485

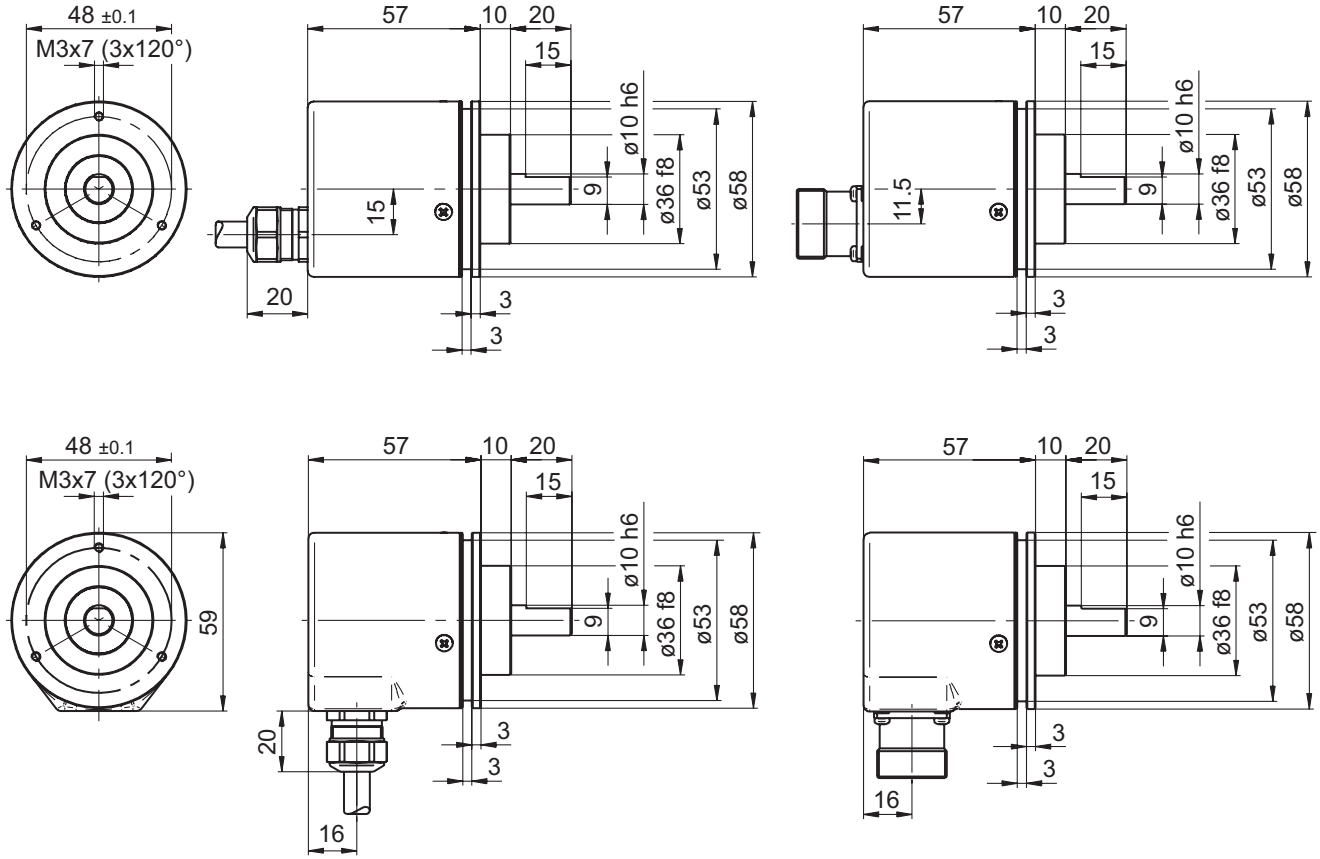
Control inputs	**Input circuit**
Input level High	>0.7 UB
Input level Low	<0.3 UB
Input resistance	10 kΩ

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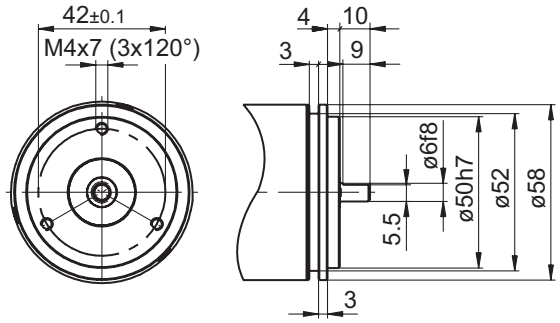
GXP2W - SSI

Dimensions

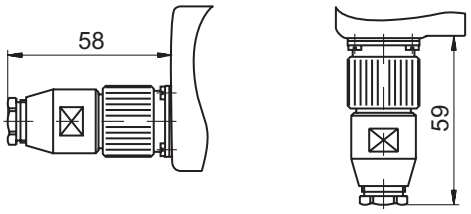
GXP2W clamping flange



GXP2W synchro flange



GXP2W connector dimensions



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