8 Subject to modification in technic and design. Errors and omissions exc

Absolute encoders - SSI

Hollow shaft max. ø14 mm

Optical multiturn encoders 14 bit ST / 12 bit MT

G0M2H - SSI



G0M2H hollow shaft

Features

- Encoder multiturn / SSI
- Optical sensing
- Resolution: singleturn 14 bit, multiturn 12 bit
- Hollow shaft max. ø14 mm
- Compact design
- Cost-efficient mounting
- High reliability by self-diagnostics
- Counting direction input
- Available with additional incremental output

Technical data - electrica	l ratings
Voltage supply	1030 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA (24 VDC)
Initializing time (typ.)	20 ms after power on
Interfaces	SSI, Incremental A 90° B (optional)
Steps per turn	16384 / 14 bit
Number of turns	4096 / 12 bit
Incremental output	2048 pulses A90°B + inverted
Absolute accuracy	±0.025°
Sensing method	Optical
Code	Gray or binary
Code sequence	CW/CCW coded by connection
Inputs	SSI clock Control signals UP/DOWN and zero
Output circuit	SSI data linedriver RS485 Diagnostic outputs push-pull
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Diagnostic functions	Self-diagnosis Code continuity check Multiturn sensing
Approval	UL approval / E63076

Technical data - mechanical design		
Housing	ø58 mm	
Shaft	ø12 mm hollow shaft ø14 mm hollow shaft	
Protection DIN EN 60529	IP 54	
Operating speed	≤6000 rpm (mechanical) ≤6000 rpm (electric)	
Rotor moment of inertia	20 gcm ²	
Materials	Housing: aluminium 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.	400 g	
E-connection	Connector, 12-pin	

Absolute encoders - SSI

Hollow shaft max. ø14 mm

Optical multiturn encoders 14 bit ST / 12 bit MT

G0M2H - SSI

Part numbe	r
G0M2H.	
	Pulses / Incremental output No incremental output 2048 pulses / push-pull 2048 pulses / RS422
	E-connection A1 Connector M23, 12-pin, radial A3 Connector M23, 12-pin, radial, for incremental output 04/06 21 Cable 1 m, radial
	Voltage supply / signals 10 1030 VDC / gray code 25 bit 12 1030 VDC / binary code 25 bit 20 1030 VDC / gray code 24 bit 90 1030 VDC / gray code 26 bit 92 1030 VDC / binary code 26 bit
0 1 B 4 5 F	

Accessorie	es	
Connectors and cables (page %S)		
Z 130.001	Female connector M23, 12-pin, less cable	
Z 130.003	Female connector M23, 12-pin, 2 m cable	
Z 130.005	Female connector M23, 12-pin, 5 m cable	
Z 130.007	Female connector M23, 12-pin, 10 m cable	
Z 182.001	Female connector M23, 12-pin, less cable (incr.)	
Z 182.003	Female connector M23, 12-pin, 2 m (incr.)	
Mounting a	ccessories (page %S)	
Z 119.023	Spring coupling for encoders with ø58 mm housing	
Z 119.024	Torque support and spring washer for encoders with 9.5 mm pin	
Z 119.041	Torque support by rubber buffer element for encoders with 15 mm pin	
Z 119.050	Spring coupling	
Z 119.053	Spring coupling height 19.1 mm	
Z 119.070	Spring coupling height 29.1 mm	
Z 119.072	Spring coupling for encoders with ø58 mm housing, hole distance 73 mm	
Z 119.073	Spring coupling for encoders with ø58 mm housing, hole distance 68 mm	
Z 119.076	Spring coupling for encoders with ø58 mm housing	
Z 119.082	Spring coupling for encoders with ø58 mm housing, hole distance 63 mm	

clock the clock bit n (bit n-1) // (bit 3) (bit 2) (bit 1)

Clock frequency f	62.51500 kHz
Scan ratio of T	4060 %
Time lag tv	150 ns
Monoflop time tm	25 μs + T/2
Clock interval tp	30 µs

Trigger level	
SSI	Circuit
SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485
Control input	Input circuit
Input level High	>0.7 UB
Input level Low	<0.3 UB
Input resistance	10 kΩ
Incremental outputs	Output circuit
	Linedriver RS422
Output level High	>2.5 V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
	Push-pull circuit-proof
Output level High	>UB 3.5 V (I = -20 mA)
Output level Low	<0.5 V (I = 20 mA)
Load High	<20 mA
Load Low	<20 mA

Data transfer

Absolute encoders - SSI

Hollow shaft max. ø14 mm

Optical multiturn encoders 14 bit ST / 12 bit MT

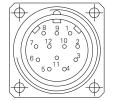
G0M2H - SSI

Terminal signif	icance icance
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.
Zero setting	Input for setting a zero point anywhere within the programmed encoder resolution. The zero setting operation is triggered by a High impulse and has to be in line with the selected direction of rotation (UP/DOWN). Connect to GND after setting operation for maximum interference immunity. Impulse duration >100 ms.
DATAVALID	Diagnostic output. An error warning is given at level Low. Important: Interferences must be filtered by the downstram electronics.
	Diagnostic output for monitoring the multiturn sensor voltage supply. Upon dropping below a defined voltage level the DV MT output is switched to Low.
UP/DOWN	UP/DOWN counting direction input. This input is standard on High. UP/DOWN means ascending output data with clockwise shaft rotation when looking at flange. UP/DOWN-Low means ascending values with counterclockwise shaft rotation when looking at flange.
Incremental Outputs	Incremental tracks A 90° B and inverted.

Terminal assignment		
G0M2H		
Connector	Core colour	Assignment
Pin 1	brown	UB
Pin 2	black	GND
Pin 3	blue	Clock+
Pin 4	beige	Data+
Pin 5	green	Zero setting
Pin 6	yellow	Data-
Pin 7	violet	Clock-
Pin 8	brown/yellow	DATAVALID
Pin 9	pink	UP/DOWN
Pin 10	black/yellow	DATAVALID MT
Pin 11	_	_
Pin 12	_	_

G0M2H with inremental tracks

Connector	Core colour	Assignment
Pin 1	brown	UB
Pin 2	white	GND
Pin 3	blue	Clock+
Pin 4	green	Data+
Pin 5	grey	Zero setting
Pin 6	yellow	Data-
Pin 7	red	Clock-
Pin 8	red/blue	Track B inv.
Pin 9	pink	UP/DOWN
Pin 10	violet	Track a inv.
Pin 11	black	Track A
Pin 12	grey/pink	Track B
		· · · · · · · · · · · · · · · · · · ·



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

Absolute encoders - SSI

Hollow shaft max. ø14 mm

Optical multiturn encoders 14 bit ST / 12 bit MT

G0M2H - SSI

Dimensions

