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RSH 58 M - SSI

Absolute multi-turn encoder with through hollow shaft

- **Elektronische Nulljustage**
- **Shockproof up to 200 g**
- **Diagnosis-output (DV)**
- **Singleturn resolution by 14 Bit**
- **Multiturn resolution by 12 Bit**
- **Total resolution by 26 Bit**
- **optional: incremental tracks 2 x 2.048 I/U**

Technical data

Total resolution	24, 25 oder 26 Bit
Steps per turn	4.096 / 12 Bit 8.192 / 13 Bit 16.384 / 14 Bit
Number of turns	4.096 / 12 Bit
Code	Gray, Binary
Code sequence	CW/CCW programmable
Interface	SSI Incremental A 90° B (optional)
Incremental output (optional)	2048 mpulses A 90° B + inverted

Electrical data

Supply voltage	10...30 VDC
Reserve polarity protection	Yes
Consumption	≤ 50 mA (24 VDC) w/o load
Initializing time	≤ 20 ms after power on
Absolute accuracy	± 0,025°
Sensing method	optical

Inputs

	SSI-Clock Control signals CW/CCW and Zero
Input level High	> 0,7 UB
Input level Low	< 0,3 UB
Input resistance	10 kÙ

Circuit

SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485

Outputs

SSI-Data	Linedriver RS485
Diagnosis output	Push pull

Incremental output
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 / Low	< 20 mA

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

Sinus/Cosinus

Output level	1 Vss ± 10 %
Load	< 10 mA

Mechanical data

Operating speed	≤ 6.000 U/min (elektrical) ≤ 6.000 U/min (mechanical)
Starting torque	≤ 0,04 Nm
Rotor moment of inertia	20 gcm^2

Housing data

Material	Housing: Steel Flange: Aluminium
Housing	Ø 58 mm
Weight	approx. 400 g
Shaft	Ø 12 mm hollow shaft Ø 14 mm hollow shaft

Ambient conditions

Vibration	DIN EN 60068-2-6 10 g, 16...2000 Hz
Shock	DIN EN 600068-2-27 200 g, 6 ms
Operating temperature	- 25... + 85 °C - 40 + 85 °C (optional)
Humidity	Max. relative Humidity 95 % non-condensing
Protection	IP 54 DIN EN 60529
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

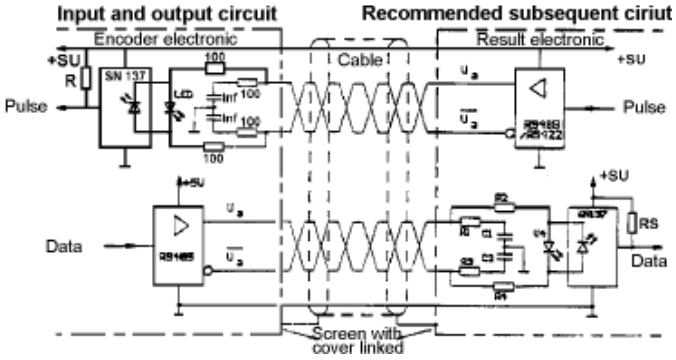
Diagnostic functions
- Self-diagnosis
- Code continuity check
- Multiturn sensing

Terminal description

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 anywherewithin 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.
DV	Diagnostic output. An error warning is given at level Low. Important: Interferences must be filtered by the downstram electronics.
DV MT	Diagnostic output for monitoring the multiturn sensor voltage supply. Upon dropping below a defined voltage level the DV MT output is switched to Low.
CW/CCW	CW/CCW counting direction input. This input is standard on High. CW/ CCW means ascending output data with clockwise shaft rotation when looking at flange. CW/CCW-Low means ascending values with counterclockwise shaft rotation when looking at flange.
Incremental Outputs	Incremental tracks A 90° B and inverted. F = 2.048 I/U, push pull (HTL signals) FR = 2.048 I/U, RS422 FS = 2.048 I/U, Sinus/Cosinus, 1 Vss

Data transfer

Clock frequency f	62,5 ... 1500 kHz
Scan ratio of T	40...60 %
Time lag tv	150 ns
Monoflop time tm	25 µs + T/2
Clock interval tp	30 µs



PIN - assigment RSH 58 M - SSI

Assignment	PIN	Core colour
UB	1	brown
GND	2	black
Clock +	3	blue
Data +	4	beige
Zero setting	5	green
Data -	6	yellow
Clock -	7	violet
DV single	8	brown-yellow
CW/CCW	9	pink
DV multi	10	black-yellow
n. b.	11	-
n. b.	12	-

With incremental tracks

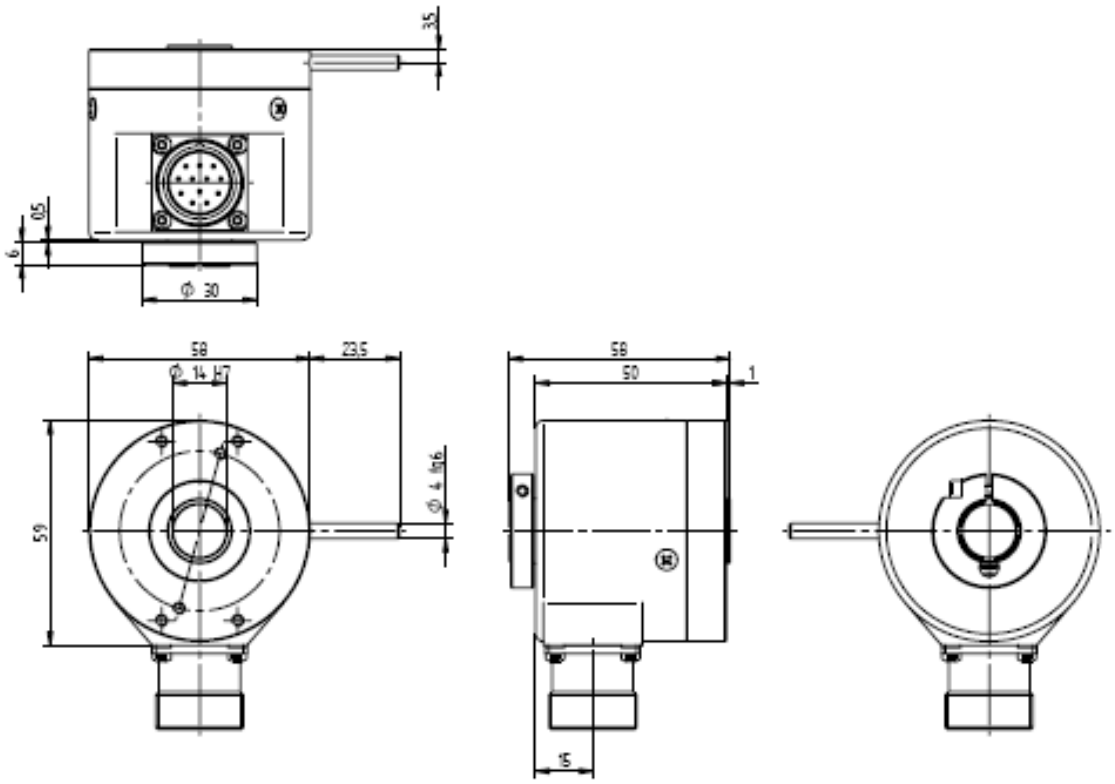
Assignment	PIN	Core colour
UB	1	brown
GND	2	white
Clock +	3	blue
Data +	4	green
Zero setting	5	grey
Data -	6	yellow
Clock -	7	red
Track B inv.	8	red/blue
CW/CCW	9	pink
Track A inv.	10	violet
Track A	11	black
Track B	12	grey/pink

Instructions:
CW/CCW CW/CCW counting direction input. This input is standard on High. CW/CCW means ascending output data with clockwise shaft rotation when looking at flange. CW/CCW-Low means ascending values with counterclockwise shaft rotation when looking at flange.
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.
DV single is the diagnosis output of single-turn, **DV multi** is the output of multi-turn.
Please refer to the supply voltage stated on the nameplate.
Do not occupy any signals which are not required.
Please use cores twisted in pairs (for example clock+ / clock -) for extension cables of more than 10 m length.
Incremental outputs
F = 2.048 I/U, push-pull (HTL signals)
FR = 2.048 I/U, RS 422
FS = 2.048 I/U, Sinus/Cosinus, 1 Vss

Type key of encoder

Encoder type	Bit/Turn	Turns	Code	Voltage	Flange	Output	Optional
RSH 58 M	**12** = 4.096 S/T singleturn	12 = 4.096 T multiturn	**G** = Gray	3 = 10 - 30 VDC	**1** = Ø 12 mm, without pin	**SS** = plug radial	**F** = 2048 I/T push-pull
RSH 58 M	**13** = 8.192 S/T singleturn		**B** = Binary		**2** = Ø 12 mm, with pin 15 mm	**KS** = cable radial	**FR** = 2048 I/T RS 422
RSH 58 M	**14** = 16.384 S/T singleturn				**3** = Ø 12 mm, with pin 9,5 mm		**FS** =2048 I/T Sinus/Cosinus
RSH 58 M					**4** = Ø 14 mm, without pin		
RSH 58 M					**5** = Ø 14 mm, with pin 15 mm		
RSH 58 M					**6** = Ø 14 mm, with pin 9,5 mm		
RSH 58 M	_____	**12**	____	**3**	_____	_____	_____

Dimension and cutout RSH 58 M - SSI



Adapter plate for mechanical match to RSH 75