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RSC 58 - SSI

Absolute multi-turn encoder with SSI interface

- shockproof up to 200g
- PC-programmable (RS 232)
- Electronical adjustment
- four function outputs
- Resolution up to 25 Bit
- Optional: With incremental signals 2 x 2.048 S/T

Technical Data

Resolution	24 or 25 Bit
Steps/turn	4096 or 8192 (programmable)
Turns	4096 (programmable)
Code	Gray or binary (programmable)
Interface	SSI (programmable) and RS 232
Function outputs	Preselection 1 and 2 Speed Monitoring Encoder Monitoring

Electrical Data

Operating voltage	10...30 VDC with reserve voltage protection
Current consumption	Max. 50 mA (w/o load), at 24 VDC
Code change frequency	Max. 800 kHz
SSI pulse frequency	62,5 kHz to 1,5 MHz
Monoflop time	16...26 µs
Pulse break	Min. 25 µs
Accuracy	± 0,025° with 400 kHz ± 0,05° with 800 kHz

Inputs

Control signals	UP/DOWN and Preset-In
Level High	> 0,7 UB
Level Low	< 0,3 UB

Connection: UP/DOWN input with 10 kohms against UB, zeroing input with 10 kohms against GND, SSI-pulse. Optocoupler input for electrical isolation.

Outputs

SSI data	RS 485
Special outputs	
Level High	> UB - 3,5 V (with I = 20 mA)
Level Low	< 0,5 V (with I = 20 mA)
Loading High	≤ - 20 mA
Loading Low	≤ 20 mA

All special outputs with short-circuit-proof push-pull output stages.

Mechanical data

Speed (mechanical)	≤ 10.000 rpm
Speed (electrical)	≤ 6.000 rpm
Start-up torque with sealing	< 0,015 Nm
Shaft loading	< 40 N radial < 20 N axial
Moment of inertia	2 x 10^{-6} kgm^2

Material

Housing	steel
Flange	Aluminium
Weight	Approx. 600g

Ambient conditions

Vibration	DIN EN 60068-2-6 ≤ 100 m/s^2 (16...2000 Hz)
Shock	DIN EN 60068-2-27 ≤ 2.000 m/s^2 (6 ms)
Operating temperature	- 20... + 85° C
Storage temperature	- 20... + 85° C
Humidity	Max. relative humidity 95 %, non-condensing
Protection type	
Shaft with sealing	IP 65
Interference resistance	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Description of diagnostic functions

The following points are monitored during operation.
- Consistency test of code
- Exceeding of the permissible signal frequency
- LED failure, aging
- Receiver failure
- Code disk, glass breakage
- Power supply of electronic gear unit

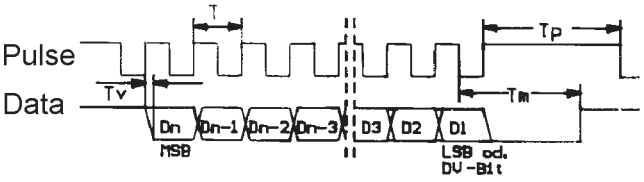
Special functions

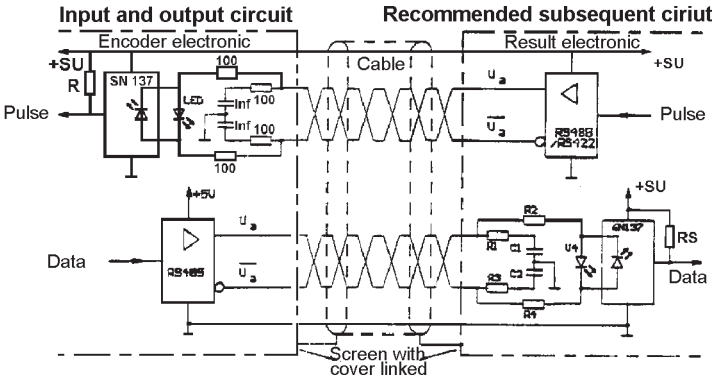
- Two „limit switch function“ preselections
- Programmable speed monitoring
- Diagnosis and operating status

Contact description

1 Data +	Positve, serial data output of the differential line driver. A High level at the output corresponds to logical 1 in positive logic.
2 Data -	Negative, serial data output of the differen tial line driver. A High level at the output corresponds to logical 0 in positive logic.
3	Programming enable
4 TxD	Encoder transmission output for the RS232 programming interface .
5 RxD	Encoder receiving input for the RS232 programming interface.
6 Pulse +	Positive SSI pulse input. Pulse - forms a current loop with pulse +. A current of approx. 7 mA in direction of Pulse + input generates a logical 1 in positive logic.
7 Pulse -	Negative SSI pulse input. Pulse - forms a current loop with pulse +. A current of approx. 7mA in direction of Pulse - input generates a logical 0 in positive logic.
8, 9, 10, 11 Output 1, 2, 3, and 4	The special outputs 1, 2, 3 and 4 may be optionally assigned the special functions preselection 1, preselection 2, speed monitoring or diagnosis status by programming.
12 GND	Encoder ground connection. The voltage drawn to GND is UB.
13 Adjustment	Electronic adjustment (takeover of the pre-programmed value) can be done by generating a steep edge from GND to UB (is activated with a falling edge). Adjustment must be done after selecting the direction of rotation (CW/CCW). Set to GND for max. immunity after adjustment. Impulse length ≥100 ms.
14 CW/CCW	CW/CCW determines the direction of turn. From the point of view of the shaft CW means that the code increases when the shaft turns to the right. When the GND is added, the code changes to CCW (descending sequence). The unit leaves the factory in CW.
15 UB	Encoder power supply connection.
16 GND-PRG	Reference potential for programming interface. Internally not directly connected to GND.

SSI (Synchron serielles Interface)





Connection assignment **RSC 58 - SSI**

Signal	PIN	Cable colour
Data +	1	violet
Data -	2	brown/white
Programming enable	3	green/white
TxD (RS 232)	4	yellow/white
RxD (RS 232)	5	gray/white
Pulse +	6	white/pink
Pulse -	7	blue/white
Output 1	8	red/white
Output 2	9	black/white
Output 3	10	brown/green
Output 4	11	green/gray
GND	12	blue
Adjustment	13	yellow
CW/CCW	14	brown
UB	15	red
not occupied	16	pink

Instrutions:

DV is the diagnostics output of the sensor (contact) and is allocated in the programme to an **output**. After switching on, the RSC 58 carries out a self-test. During operation, the following features are monitored: consistency of the code, overstepping of the maximum signal frequency, LED shutdown, ageing, receiver shutdown, code disk, glass breakage, and power supply to the electronic drive. If there is a malfunction, the DV changes its output level (low to high or vice versa, depending on the programming). There are three more **outputs** available and to these you can allocate two end switch functions and one speed monitor via the programme. Programming the sensor is via the RS232 (please request our programming handbook), the programming software, and the connection cable from sensor ⇔ PC (if you wish, the sensors can be pre-programmed before they leave our factory).

To start programming, connect to GND (go into GND). During operation, this input should be to set to UB. **CW/CCW** controls the direction of rotation. For the shaft, CW indicates a rising code for rotation to the right. In GND the code changes to CCW (falling code). The unit comes to you in the CW mode.

Electronic **adjustment** (takeover of the pre-programmed value) can be done by generating a steep edge from GND to UB (is activated with a falling edge). Adjustment must be done after selecting the direction of rotation (CW/CCW). Set to GND for max. immunity after adjustment. Impulse length ≥100 ms.

Please refer to the rating plate for the correct **power supply**.

Type key of Encoder **Option: additional incremental signals 2 x 2.048 S/T**

Encoder Type	Bit/Turnings	Turnings	Code	Voltage	Flange	Output
RSC 58		12 = 4096T	P = programmable	3 = 10 - 30 VDC	W 1 = 10 mm shaft clamping flange	KG = Cable axial
RSC 58	13 = 8192 S/T				V 6 = 6 mm shaft servo flange	KS = Cable radial
RSC 58						UG = 16pol. plug axial
RSC 58						US = 16pol. plug radial
RSC 58	**13**	**12**	**P**	**3**	_____	_____

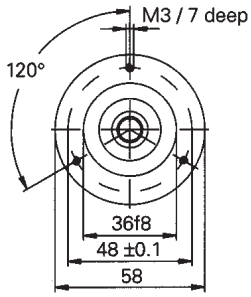
Preferred type:

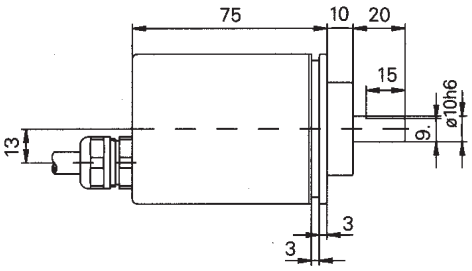
RSC 58 - 13 + 12 - P - 3 - W1 - US

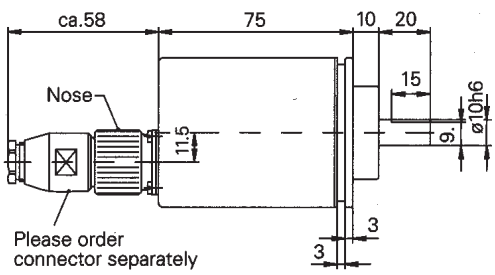
Short designation 'RSC-MRW2'. Multi-turn, 25 Bit, Code Gray / Binary, SSI, UB 10 - 30 VDC, 10 mm shaft, clamping flange, 16pole. plug radial, PC-programmable. (Please request our programming instruction.)

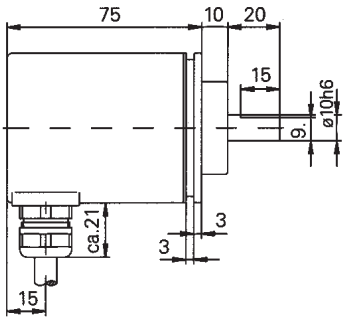
Dimensions and cutout RSC 58 - SSI

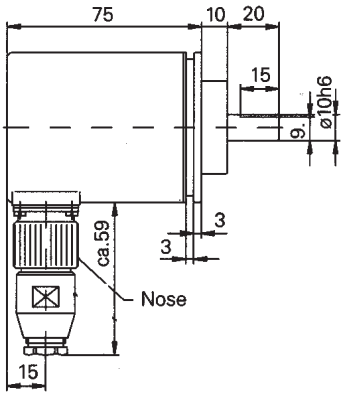
10 mm shaft, clamping flange











6 mm shaft, servo flange