ReSatron GmbH
Eindhovener Str. 58
D-41751 Viersen
Phone (+49) 02162 - 45 06 80
Fax (+49) 02162 - 45 03 04
www.resatron.de
e-mail: info@resatron.de

RSH 75 M - SSI

Absolute multi-turn encoder with through hollow shaft

- Shockproof up to 200 g
- Electronical adjustment
- Diagnosis output (DV)
- Up to 25 Bit resolution

Technical data

Resolution	24 or 25 Bit
Steps/Turn	4096 or 8192
Turns	4096
Code	Gray, Binary
Interface	SSI

Electrical data

Operating voltage	10...30 VDC
Current consumption	Max. 50 mA (w/o load), at 24 VDC
Code change frrequency	800 kHz
SSI pulse frequency	62,5 kHz to 1,5 MHz
Monoflop time	20 µs
Pulse break	Min. 25 µs
Accuracy	± 0,025° with 400 kHz ± 0,05° with 800 kHz

Inputs

Control signals	CW/CCW and zero
Level High	> 0,7 UB
Level Low	< 0,3 UB

Connection: CW/CCW 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
Diagnosis outputs	
Push-pull output is short-circuit-proof	
Level High	> UB - 3,5 V (with I = 20 mA)
Level Low	< 0,3 V (with I = 20 mA)

Mechanical data RSH 75

Speed (mechanical)	≤ 6.000 min $^{-1}$
Speed (electrical)	≤ 6.000 min $^{-1}$
Start-up torque	< 0,015 Nm
Shaft loading	< 40 N radial, < 20 N axial
Moment of inertia	2 x 10^{-6} kgm^2
Weight	approx. 700 g

Mechanical data RSH 90

Speed (mechanical)	≤ 3.800 min $^{-1}$
Speed (electrical)	≤ 6.000 min $^{-1}$
Start-up torque	< 0,015 Nm
Shaft loading	< 40 N radial, < 20 N axial
Moment of inertia	200 x 10^{-6} kgm^2
Weight	approx. 830 g

Mechanical data RSH 120

Speed (mechanical)	≤ 2.000 min $^{-1}$ upper on request
Speed (electrical)	≤ 6.000 min $^{-1}$
Start-up torque	< 0,015 Nm
Shaft loading	< 40 N radial, < 20 N axial
Moment of inertia	1100 x 10^{-6} kgm^2
Weight	approx. 1.200 g

Material

Housing	Steel
Flange	Aluminium

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... + 70° C
Storage temperature	- 20... + 70° C
Humidity	Max. relative humidity 95 % no-condensing
Protection type	IP 54
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

Contact description

1 UB — Encoder power supply connection

2 GND — Encoder ground connection. The voltage drawn to GND is UB.

3 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.

4 Data + — Positve, serial data output of the differential line driver. A High level at the output corresponds to logical 1 in positive logic.

5 Adjustment — Zero setting input for setting a zero point at any desired point within the entire resolution. The zeroing process is triggered by a High pulse (pulse duration ≥ 100 ms) For maximum interference immunity, the input must be connected to GND after zeroing.

6 Data - — Negative, serial data output of the differential line driver. A High level at the output corresponds to logical 0 in positive logic.

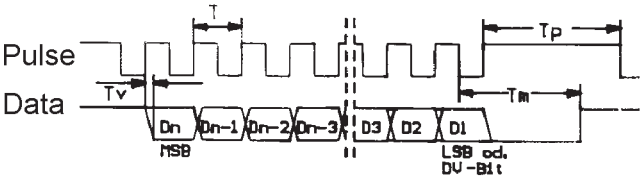
7 Pulse - — Negative SSI pulse input. Pulse - forms a current loop with pulse +. A current of approx. 7mA in direction of Pulse - input generates a logical 0 in positive logic.

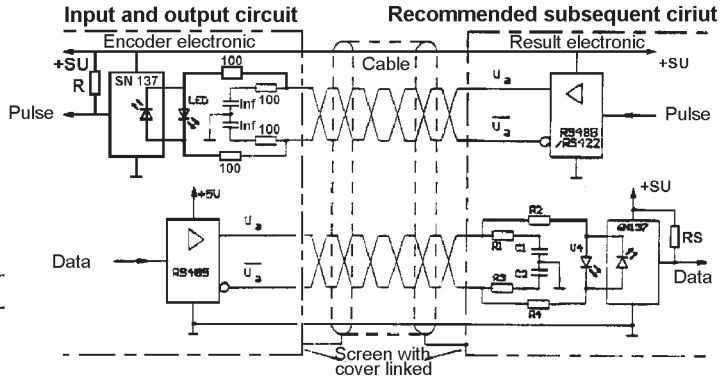
8 / 10 DV/DV MT — Diagnostic outputs DV and DV MT Jumps in data word, e.g. due to defective LED or photoreceiver, are displayed via the DV output. In addition, the power supply of the multiturn sensor unit is monitored and the DV MT output is set when a specified voltage level is dropped below. Both outputs are Low-active, i.e. are switched through to GND in the case of an error.

9 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.

11 / 12 — Not in use

SSI (Synchron serielles Interface)





PIN - assignment RSH 75 M - SSI

Signal	PIN	Cable colour
UB	1	brown
GND	2	black
Pulse +	3	blue
Data +	4	beige
Adjustment	5	green
Data -	6	yellow
Pulse -	7	violett
DV single	8	brown-yellow
CW/CCW	9	pink
DV multi	10	black-yellow
not in use	11	-
not in use	12	-

Instructions:

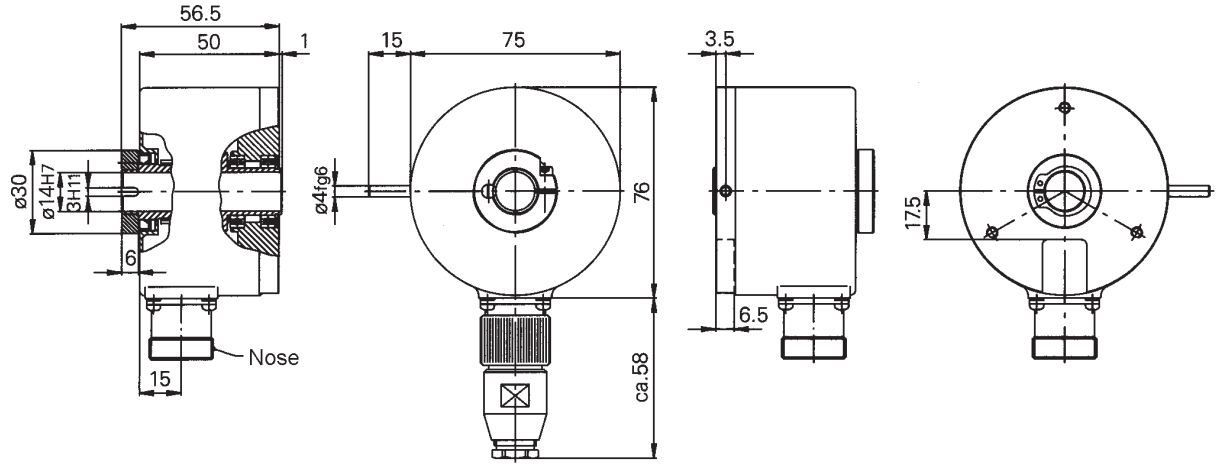
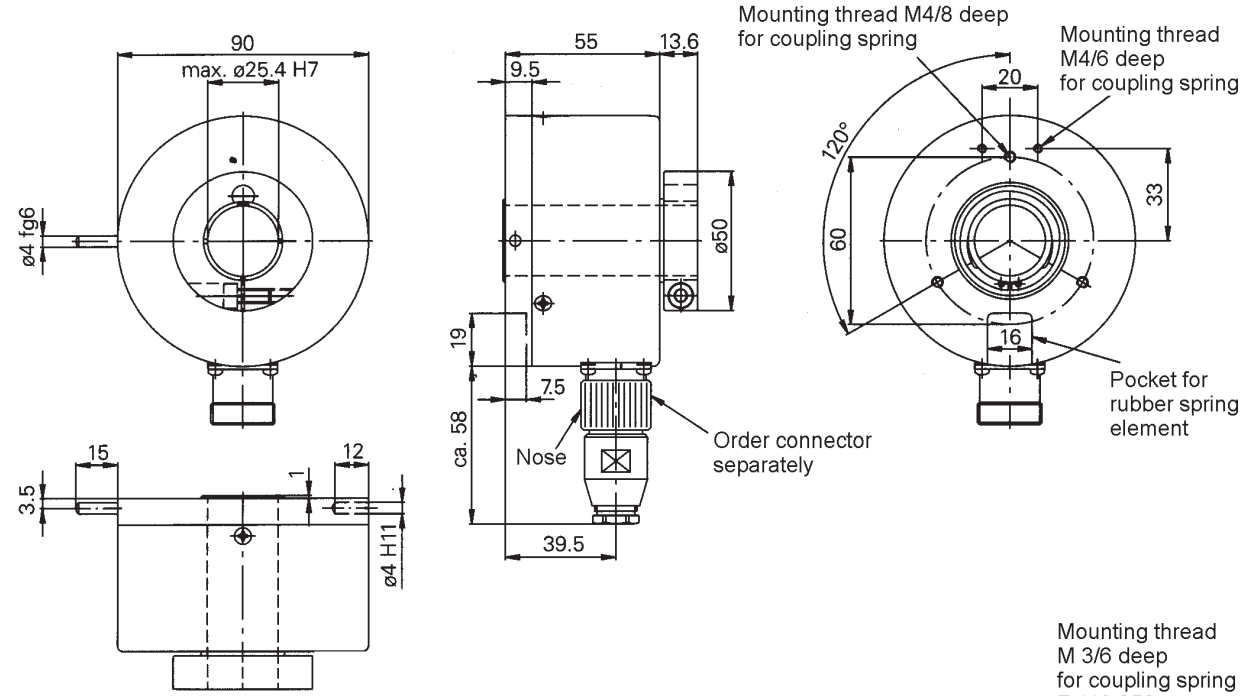
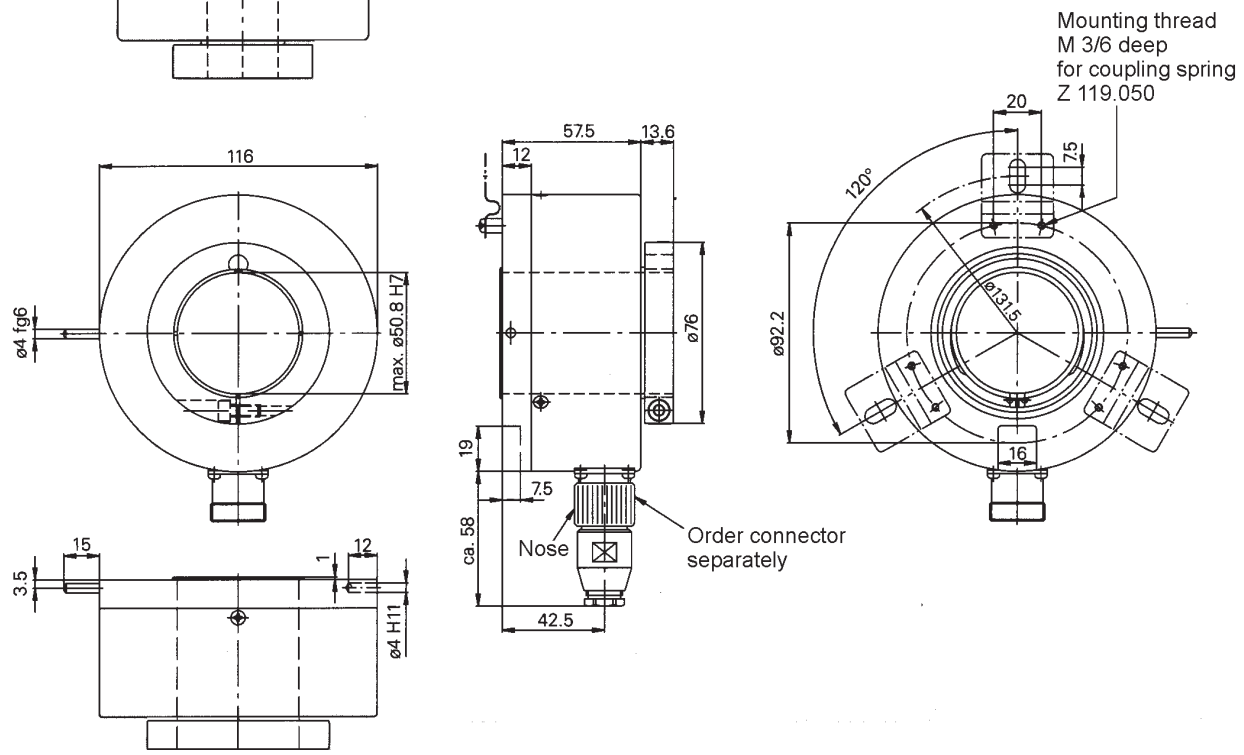
CW/CCW controls the direction of rotation. For the shaft, CW indicates a rising code for rotation to the right. In GND the code changes to CCW (falling code). The unit comes to you in the CW mode.

Zero adjustment for setting a zero point at any desired point within the entire resolution. The zeroing process is triggered by a High pulse (pulse duration ≥ 100 ms) and must take place after the rotating direction selection (UP/DOWN). For maximum interference immunity, the input must be connected to GND after zeroing.

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.

Type key of encoder

Encoder type	Bit/Turn	Turns	Code	Voltage	Flange	Output
RSH 75 M	12 = 4096 S/T	12 = 4096 T	G = Gray	3 = 10 - 30 VDC	1 = Ø 14 mm, threaded pin	SS = 12pol. plug radial
RSH 75 M	13 = 8192 S/T		B = Binary		2 = Ø 12 mm, clamping collar	KS = Cable sideways
RSH 75 M					3 = Ø 14 mm, clamping collar	
RSH 90 M					**up to 25.4 mm on request**	
RSH 120 M					**up to 50,8 mm on request**	
RSH ___ M	_____	_____	_____	**3**	_____	_____

Dimension and cutout RSH 75, 90 and 120 M - SSI