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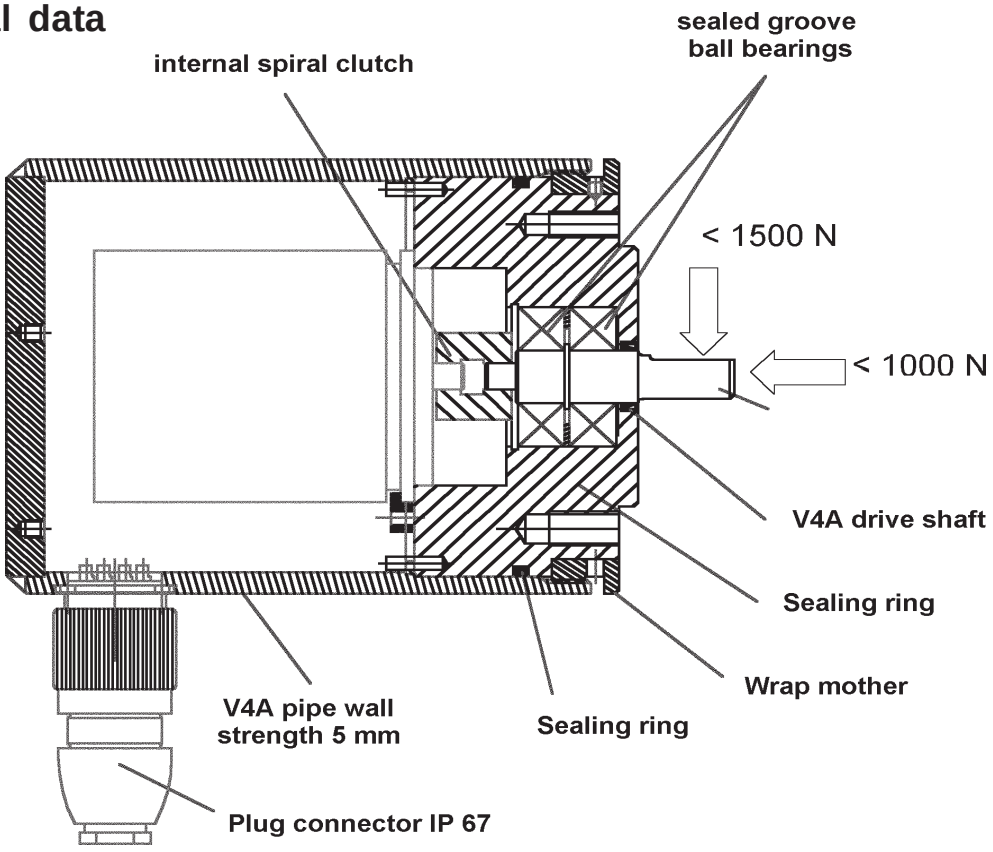
RSG 10 N

Programming cam controller in stainless steel housing with 16 parallel outputs

- Total count from 2 to 4096 steps in two-power-steps programmable
- 16 outputs up to 250 cams programmable
- Code-distribution parameterizable normal/inverse
- on-board diagnosis systems
- Electronical zero-point- and Offset-adjustment

The shaft encoder system **RSG 10** was especially constructed for use under the conditions of heavy and plant making industries. The consderably lowers the costs of the mechanical adaption of the encoder, as a high efficient measuring system, to the different constructions.
System **RSG 10** was developed in close cooperation with engineers of electrical maintenance and plant making departments of the heavy industries. Because of this the already known dimensions of the standard shaft encoder system have been maintained. The system stays compatible to the mostly required encoders, inspite of its very high mechanical resistivity. Because of the extremely high mechanical and atmospheric loads all parts have been manufactured in stainlees steel **(V4A 1.4571).**
The high protection class of IP 67 and the very high bearings loads of 100 kg axial and 150 kg radial ease the use of this encoder under the conditions of the heavy and plant making industries. Additionally the internal encoders is separated form the shaft of the protection cover by means of a coupling, that e.g. guarantees a protection of the internal encoder shaft against shocks.
An additional protection cover is not necessary even under the conditions of heavy industries.

Mechanical data



Technical data

Total count	24 Bit
Steps/turn	4096 (programmable) optional
Turns	4096 (programmable) in two-power-steps
Code	Binary
Interface	RS 232

Electrical data

Operating voltage	UB = 10...30 VDC
Current consumption	Max. 50 mA (w/o load), at 24 VDC
Code change frequency	Max. 400 kHz
Accuracy	± 0,03° with 200 kHz ± 0,05° with 400 kHz

Inputs

Level High	> 0,7 UB
Level Low	< 0,3 UB
Connection	Inputs with 10 kohms to UB; apart from zeroing input with 10 kohms to GND

Outputs

Level High (PNP)	≥ UB - 4,5 V (with I = -15 mA)
Level Low	≤ 3,5 V (with I = 15 mA)
Loading High (PNP)	≤ -20 mA
Loading Low (NPN)	≤ 20 mA
Tristate	≤ 200 µA

All outputs with short-curcuit-proof PNP or NPN Open Collector output stages.

Mechanical Data

Speed (mechanical)	max. 10.000 min $^{-1}$
Speed (electrical)	max. 6.000 min $^{-1}$
Start-up torque	< 0,3 Ncm (20° C)
Shaft loading	< 1.500 N radial < 1.000 N axial
Moment of inertia	10^{-} rad/s^2

Material

Housing	stainless steel V4A 1.4571
Flange	stainless steel V4A 1.4571
Weight	approx. 5,2 kg

Ambient conditions

Vibration	DIN EN 60068-2-6 ≤ 100 ms^{-2},16...2000 Hz
Shock	DIN EN 60068-2-27 ≤ 2.000 m/s^2,6 ms
Operating temperature	- 20...+ 70° C
Humidity	Max. relative humidity 95 % no-condensing
Protection type	IP 67
Interference resistance	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Description of diagnostic functions
The following is 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“ preselection
- Programmable speed monitoring
- Diagnosis and operating status

Type key of Encoder

Encoder Type	Bit/turnings	Turnings	Driver	Voltage	Flange	Output	Options
RSG 10 N	12 = 4096 S/T	12 = 4096 T	P = OC PNP	3 = 10 - 30 VDC	V1 = 10 mm shaft servo flange	KG = Cable axial	L = air cooling
RSG 10 N			N = OC NPN			KS = Cable radial	W = water cooling
RSG 10 N						SS = 2plugs radial	H = electrical heating
RSG 10N	**12**	**12**	_____	**3**	**V 1**	_____	_____

Contact Description

1 - 16 SO-S15	16 cam outputs. Up to 250 cams can be programmed on these 16 outputs. With PNP, Pull-DOWN is recommended for each data line, and for NPN Pull-UP r resistors with 4.7 kohms.
17 - 20 D20 - D23	Special outputs This outputs may be optionally assigned the special functions preselection 1, preselection 2, speed monitoring and diagnosis status by programming.
21 GND	Encoder ground connection relating to UB
22 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 ³100 ms.
23 ENABLE	If this input is connected to Low level, the output drivers are activated. If it is connected to High potential (or unconnected), the output drivers switch into the high-resistance state (tristate).
24 STORE	When a Low level is connected, the data of the absolute encoder are temporarily stored. If this input is connected to High potential or stayed open, the current position data of the absolute encoder is switched through to the output drivers. This line must be used for reliable data read-out in the binary code.
25 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.
26 UB	Encoder power supply connection

Condition for programming:

- PC with RS 232 interface and Windows system software
- Programming software ProEncoder and handbook
- Programming cable, which connected the absolute-encoder with the PC.

PIN-assignment RSG 10 N 26pol. plug

Signal	PIN	cable colour
S 0	1	white
S 1	2	brown
S 2	3	green
S 3	4	yellow
S 4	5	gray
S 5	6	pink
S 6	7	black
S 7	8	violett
S 8	9	gray-pink
S 9	10	red-blue
S 10	11	white-green
S 11	12	brown-green
S 12	13	white-yellow
S 13	14	yellow-brown
S 14	15	white-gray
S 15	16	gray-brown
D 20	17	gray-green
D 21	18	yellow-gray
D 22	19	pink-green
D 23	20	yellow-pink
GND	21	blue
Adjustment	22	yellow-blue
ENABLE	23	brown-blue
STORE	24	brown-black
CW/CCW	25	green-blue
UB	26	red

PIN-Occupation RSG 10 N 9pol. plug, Programming and power requirement for the heating

Signal	PIN
Heating +	1
Heating -	2
Report „Heating on“	3
not in use	4
TxD (RS 232)	5
RxD (RS 232)	6
Programming enable	7
GND	8
not in use	9

Dimension and cutout RSG 10 N