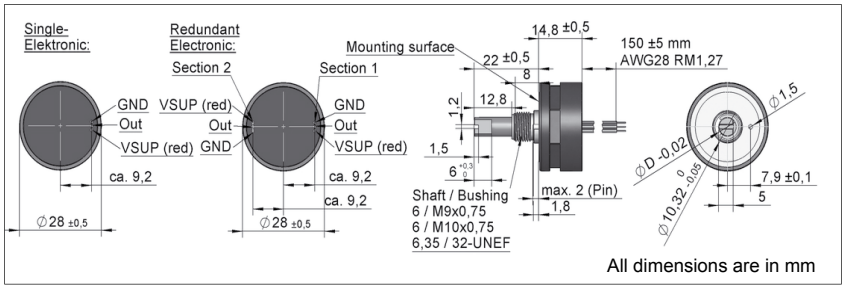
RotaCol® - *Ecoline*
PRECISION ANALOG CONTACTLESS ROTARY POSITION SENSORS - BUSH MOUNTING

Series 28A ERCB

Economical - Bush mounting
28 mm Ø plastic robust housing
Hall CMOS technology
Analog output - Current / voltage output
Shock and vibration proof
Alternative to precision potentiometers

1-Supply (red); 2-Output (grey); 3-Ground (grey)



For full range of Rotary Sensor refer - www.rotacol.info/rotamec.pdf

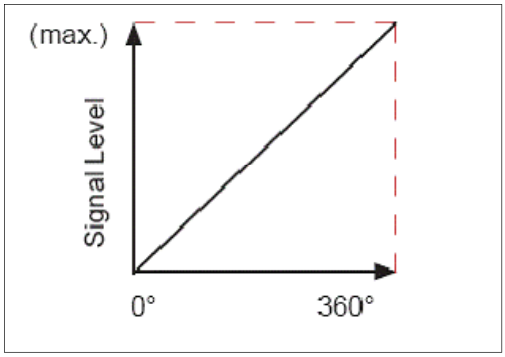
FUNCTION PRINCIPLE

The determination of angular position and signal generation is realised by an intelligent CMOS Hall sensor. A diametrical polarised magnet induces its magnetic field into the sensor. It rotates and provides a conditioned signal to the integrated electronic.

ELECTRICAL CHARACTERISTICS

Electrical angle	0 to 360°, any angle from 0 - 20°....0 - 360° programmable in steps of 1°	
Electrical speed (Max.)	160 rpm (default) / 800 rpm (optional)	
Resolution	4096 step (12 bit)	
Independent linearity tolerance	± 0.5%	
Signal type	Supply voltage	Output signal
0505	5 V ±10%	0 - 5V ratiometric
DC05	9 - 30 V	0 - 5V
2410	15 - 30 V	0 - 10 V
2442	15 - 30 V	4 - 20 mA
2420	15 - 30 V	0 - 20 mA
Supply current	< 16 mA	
Update rate	1ms	

ANALOG INTERFACE



At the output of the sensor a variable voltage or variable current is provided proportional to the position of the shaft / axis over a complete angle range of 360 ° or a subrange. The contactless sensor electronic guarantees a steady signal level and a very low linearity error of 0.5%. With supply voltages of 5VDC ± 10%; 9 - 30VDC; 15 - 30V (24VDC) output signals of 0 - 5V ratiometric, 0 - 5VDC; 0 -10VDC; 0 - 20mA ; 4 - 20mA at the sensor output are provided. Besides this a large variety of electrical options such as Zero point programming, Centre point programming, Multipoint programming are provided. Two channnel redundant outputs are provided for voltage outputs.

Default Version :
360° CW Electrical & Mechanical angle, Electrical speed 160 rpm, Medium Torque, 3 core flat cable 0.15 mtr long

MECHANICAL CHARACTERISTICS

Mechanical angle	(O) 360° without stop (S) 320° +5° / - 0° with stop
Mechanical speed (Max.)	800 rpm (brass), 3000 rpm (polymer bearing)
Shaft diameter X length (FMS)	6 mm or 1/4 inch Ø X 22 mm
Life: with brass sleeve bearings	~10 million rotations
Life: with polymer sleeve bearings	~15 million rotations
End stopper strength	< 80 Ncm
Operating temperature	- 40 ... +85 °C
Operating torque (Medium)	0.5 -1 Ncm (default)
Vibration (IEC 68-2-6, Test Fc)	±1.5 mm / 20g / 2000Hz / 16cycles
Mechanical shock (IEC 68-2-7, Test Ea)	50g /11ms /halfsine (3X6 shocks)
Weight	30 gm
Interconnection	3 core flat cable 0.15 mtr long

MATERIAL

Bushing	brass
Bearing Bearing type: (option P)	sleeve bearing - brass (default) polymer sleeve bearing (optional)
Housing	Nylon 66 Glass Fibre reinforced
Shaft	stainless steel

ORDERING INFORMATION

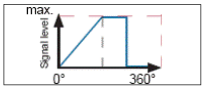
Refer to electrical and mechanical options on page 2

Housing diameter	Analog output	Ecoline RotaCol	Bush mounting		Signal		2 Channel redundant output (For voltage output)	With stop, (default 320°) options 90°,180°,270°	Without stop, (default 360°) Any angle from 20° to 360° in steps of 1°	Clockwise (CW) (default) Counter clockwise (CCW)	Programming options for non - effective electrical angle (only if elec. angle is <360°)	Delta 1/2 (default) Low level High level Variable level	Programming options	Zero point Center point Multipoint	Low torque (< 0.5 Ncm) Medium torque (0.5-1Ncm) - default High torque (1.5 - 3 Ncm)	Polymer sleeve bearing (only for B1)	Shaft seal IP65 (not for "P" option)	Special shaft length (default 22 mm FMS)	Special cable length (default 0.15 mtr)
28	A	ERC	B1 B2 B3	Thread M10X0.75 / Shaft 6 mm Ø Thread M9X0.75 / Shaft 6 mm Ø Thread 3/8"- 32 UNEF/ Shaft 6.35 mm Ø	S 0505 SDC05 S 2410 S 2442 S 2420	0 - 5V (ratiometric) 0 - 5V 0 - 10V 4 - 20mA 0 - 20mA	2C	Sxxx	Oxxx	CW CCW	PEx	PE1 PE2 PE3 PE4	POx	POZ POC POM	LT MT HT	P	D	Axx	CVxx
28	**A**	**ERC**	**Bx**		**Sxxxx**		**2C**	**Sxxx/Oxxx**		**CW / CCW**	**PEx**		**POx**		**xT**	**P**	**D**	**Axx**	**CVxx**

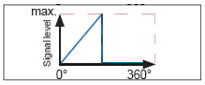
Example with description- **28 A ERC B2 S2410 S270 CW PE1 POZ A25** -28 mm housing, analog output, Ecoline RotaCol, Bush mounting -Thread M9 X 0.75 / 6mm shaft, 0 - 10 V output, with stop 270°, clockwise, delta 1/2,zero point, 3 core flat cable 0.15 mtr long, special shaft length 25 mm FMS

ELECTRICAL OPTIONS FOR ANALOG VERSION 28A ERCB

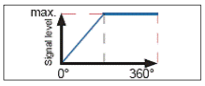
Non-effective Electrical Angle (PE1) - Delta 1/2
If the electrical effective angle is programmed smaller than 360°, the remaining electrical non-effective angle is divided in two equal parts : high level & low level (Delta 1/2)



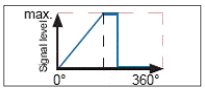
Low level (PE2)
If the electrical effective angle is programmed smaller than 360°, after reaching the maximum, the signal level falls to low level.



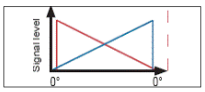
High level (PE3)
If the elecrical angle is programmed smaller than 360°, the signal level remains high after reaching the full level.



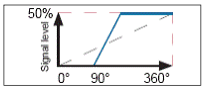
Variable level (PE4)
If the electrical angle is programmed smaller than 360°,remaining electrical non effective angle can be divided into high and low level in any ratio according to customer request.



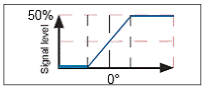
Direction of Rotation (CW/CCW)
By default the direction of rotation is clockwise (CW). With this option it is also possible to change the direction from clockwise(CW) to counterclockwise (CCW).



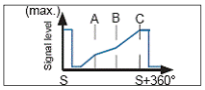
Zero point Programming (POZ)
Mechanical zero point is aligned with marking on the sensor housing. Electrical zero point can be aligned to mechanical zero point. Zero point can be programmed at any offset.



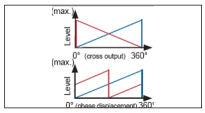
Center Point Programming (POC)
Effective electrical angle is aligned with the mechanical zero point in such a way that equal effective angles in both rotating directions are achieved. Center point can be programmed at any offset.



Multi Point Programming (POM)
Output characteristics : 3 to 6 rising or falling linear segments. Min and max signal level can be defined within the total electrical angle. First and last linear segment (min/max) is always horizontal.1 to 3 setable calibration points.



2 Channel Redundant Output (2C)
This is realized by a Hall sensor chip consisting of 2 galvanically seperated sensing elements. One magnet provides a magnetic field simultaneously for both elements. Both elements can be programmed identically, or channel 2 can also be programmed independently from channel1. (Valid only for 0505, DC05, and 2410 outputs).



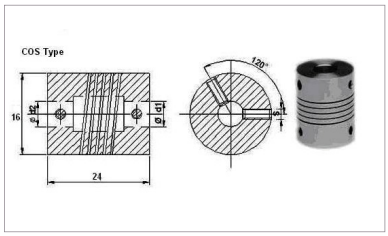
MECHANICAL OPTIONS FOR ANALOG VERSION 28A ERCB

Type / Series	Standard mechanical options	Customized mechanical options
28A ERCB	Low torque (LT), High torque (HT), endstop at 90°, 180°, 270° - Mu metal cap	Special shaft length ; Special endstop angle

ACCESSORIES - SPIRAL COUPLINGS

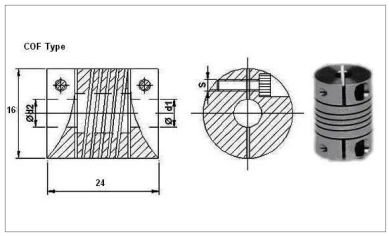
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either 1/4th inch or 1/8 inch shaft dia. These can be used to connect metric and non metric devices.

COS Type



Set Screw Fitting
6 mm (d1) - 1/4” (d2)
6 mm (d1) - 1/8” (d2)

COF Type



Flange Clamping
6 mm (d1) - 1/4” (d2)
6 mm (d1) - 1/8” (d2)

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