

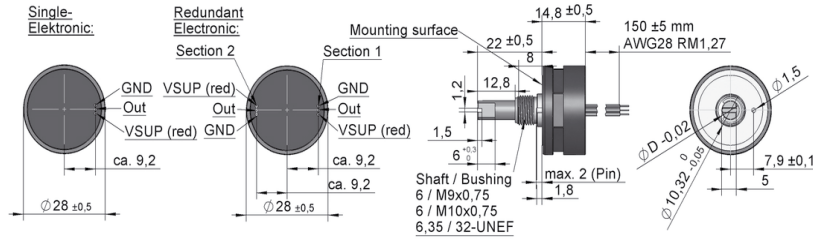
RotaCol® - Ecoline PRECISION ANALOG CONTACTLESS ROTARY POSITION SENSORS - BUSH MOUNTING

Series 28A ERCB

Ø28 mm plastic robust housing
Hall CMOS technology
Analog output - Current / voltage and PWM output
Bush mounting
Shock and vibration proof
Alternative to precision potentiometers



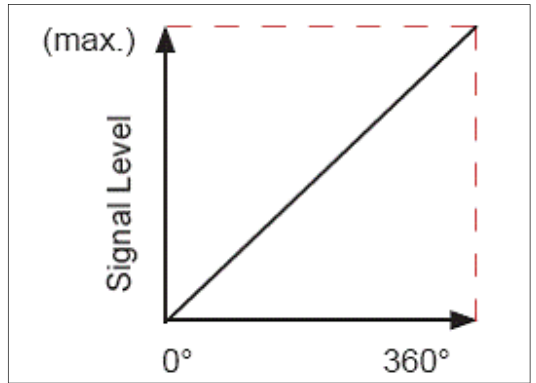
www.rotacol.info/28aercb.pdf



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.

ANALOG INTERFACE



At the output of the sensor a variable voltage 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 0.3%. With supply voltage of 5V ± 10% , output signal of 0 - 5V (ratiometric) at the sensor is provided. Besides this a large variety of electrical options such as Zero point programming, Centre point programming, Multipoint programming, PWM, 2 Channel redundant are provided.

ELECTRICAL CHARACTERISTICS

Electrical angle	0 to 360°, any angle from 0 - 20°...0 - 360° programmable in steps of 1°	
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
PWM	5 V ±10%	PWM
Supply current	< 16 mA	
Update rate	1ms	

MECHANICAL CHARACTERISTICS

Mechanical angle	(O) 360° without stop (S) 320° +5° / - 0° with stop
Mechanical speed (Max.)	800 rpm (brass), 3000 rpm (polymer bearing)
Electrical speed (Max.)	160 rpm
Life: with brass sleeve bearings	~10 million rotations
Life: with polymer sleeve bearings	~15 million rotations
End stop resistance	< 80 Ncm
Operating temperature	- 40 ... +85 °C
Operating torque (For medium)	0.5 - 1 Ncm (std)
Vibration (IEC 68-2-6, Test Fc)	±1.5 mm / 20g / 2000Hz / 16cycles
Mechanical shock (IEC 68-2-7, Test Ea)	50g / 11ms / halvesine (3X6 shocks)
Weight	28 gm

MATERIAL

Bearing	sleeve bearing - brass
Bearing type: option P	polymer sleeve bearing
Housing	Nylon 66 Glass Fibre reinforced
Shaft	stainless steel
Cable	3 core flat cable 0.15 m

OPTIONS AND ORDERING REFERENCES

Refer to electrical and mechanical options on page 2

Housing diameter	Analog output	Ecoline RotaCol	Bush mounting	Signal	Options	Options	Options	Options	Options	Options	Options	Options	Options	Options	Options
28	A	ERC	B1 B2 B3	S 0505 S PWM S DC05 S 2410 S 2442 S 2420	2C	S320° O360°	CW CCW	PEX	POX	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 S90 CW PE1 POZ A18** -28 mm housing, analog output, Ecoline RotaCol, Bush mounting -Thread 9mm/6mm shaft, 0 - 10 V output, with stop 90°, clockwise, delta 1/2,zero point, special shaft 18 mm

Standard Version : 360° CW Electrical & Mechanical angle, Medium Torque, 3 core flat cable

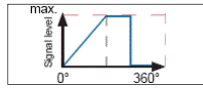
For complete RotaCol Contactless Rotary Sensor product range refer - www.rotacol.info/rotamec.pdf

Please note: The specification and information in this datasheet cannot consider all special demands that are caused by the application. Because of this, they are no general description of the properties of the product. Megacraft does not assume any responsibility for damages due to improper application of our products. The user has to ensure on his own, that the products used are suitable for his application. Megacraft does not warrant the reproducibility of published information. The specifications can be changed any time without notice.

ELECTRICAL OPTIONS FOR ANALOG VERSION 28A ERCB

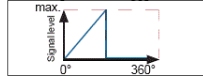
Non-effective Electrical Angle (PE1) - Delta 1/2

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)



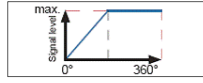
Low level (PE2)

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



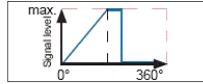
High level (PE3)

If the electrical angle is programmed smaller than 360°, the signal level remains high after reaching the full level.



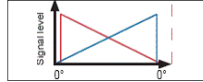
Variable level (PE4)

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.



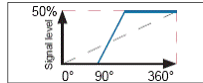
Direction of Rotation (CW/CCW)

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).



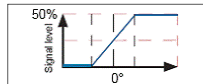
Zero point Programming (POZ)

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.



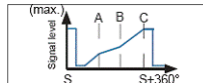
Center Point Programming (POC)

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.



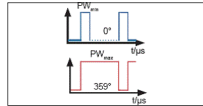
Multi Point Programming (POM)

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 settable calibration points.



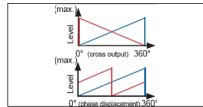
Pulse Width Modulation (PWM)

PWM provides a constant carrier frequency which defines high to low ratio. The ratio between high & low corresponds to the signal characteristics. It is in a fixed relation to the angle. Generally, for further signal processing, no A/D converter is required because many microcontrollers already have PWM input (valid only for 0505 output).



2 Channel Redundant Output (2C)

This is realized by a Hall sensor chip consisting of 2 galvanically separated 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 channel 1. (Valid only for 0505, DC05, and 2410 outputs).



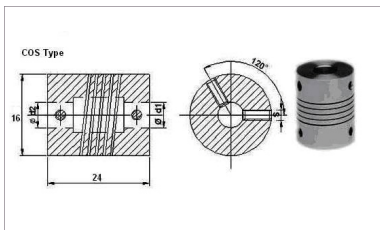
MECHANICAL OPTIONS FOR ANALOG VERSION 28A ERCB

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

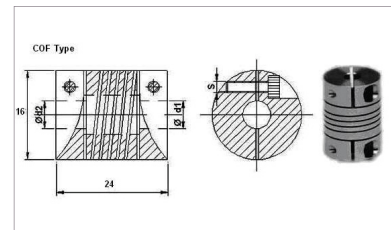
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either 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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