

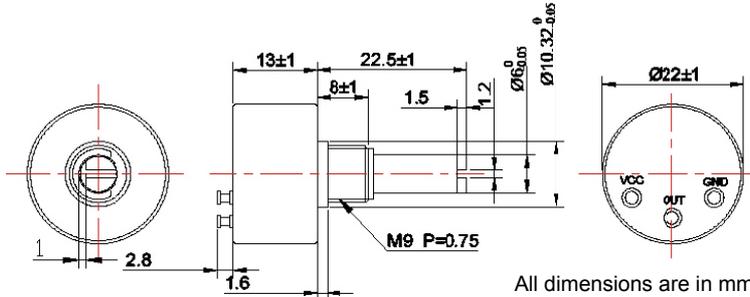
# RotaCol® - Goldline PRECISION ANALOG CONTACTLESS ROTARY POSITION SENSOR

Series 22A RCB

**Metalcase - 1 Ball bearing**  
**Hall effect magnetic**  
**Precision potentiometer replacement**  
**Ratiometric 5V output**  
**Robust metal aluminium housing with ball bearing**  
**Bush mounting**  
**Shock & vibration proof**  
**Measurement range 0° - 360°**



[www.rotacol.info/22arcb.pdf](http://www.rotacol.info/22arcb.pdf)



## ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°, any angle from 0 - 20.... 0 - 360 programmable in steps of 1°
Resolution	4096 step (12 bit)
Supply voltage	5V ± 10%
Output signal	Analog 0 - 5V (ratiometric)
Supply current	< 16 mA
Independent linearity tolerance	0.3%

## MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Starting torque (approx.)	0.5 Ncm
Protection	IP 40
Operating temperature	- 40 to +85° C
Operating life (approx.)	20 million rotations
Mechanical speed (max.)	5000 rpm
Electrical speed (max.)	160 rpm
Weight	20 gm

## MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Terminals	brass gold plated
Bearings	1 precision ball bearing

## OPTIONS AND ORDERING REFERENCES

Refer to electrical options on page 2

Housing diameter	Analog output	RotaCol Goldline	Bush version with ball bearing	Signal	Angle and electrical rotational direction	Programming options for non - effective electrical angle	Delta 1/2 Low level High level Variable level	Programming options	Output connection 3 pin
22	A	RC	B	S0505 SPWM	xxx CW xxx CCW	PEX	PE1 PE2 PE3 PE4	POX	OCP
<b>22</b>	<b>A</b>	<b>RC</b>	<b>B</b>	<b>S0505</b>	<b>xxx CW / CCW</b>	<b>PEX</b>		<b>POX</b>	<b>OCP</b>

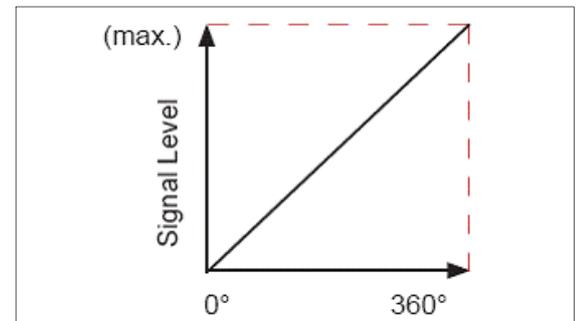
Example with description **22A RCB S0505 360CW OCP** - 22mm diameter, analog output, RotaCol Goldline, Bush version, Signal - 5V (ratiometric), 360 angle and clockwise direction, Output connection 3 Pin

**Standard Version** : 360° CW Electrical & Mechanical angle, 0 - 5V (ratiometric) , OCP - 3 pin

## 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



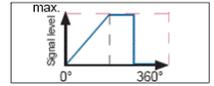
At the output of the sensor a variable voltage is provided proportional to the position of the shaft / axis over a complete angle range of 360° or a subrange. The contactless sensor electronic guarantees a steady signal level and a very low linearity error of 0.3%. With supply voltage of 5V ± 10% , output 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, are provided.

For complete RotaCol Contactless Rotary Sensor product range refer - [www.rotacol.info/rotamec.pdf](http://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.

**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)



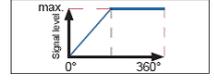
**Low level (PE2)**

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



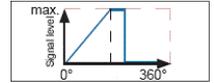
**High level (PE3)**

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



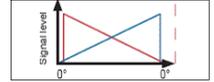
**Variable level (PE4)**

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.



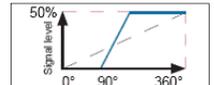
**Direction of Rotation (CW/CCW)**

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).



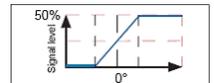
**Zero point Programming (POZ)**

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.



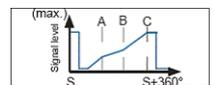
**Center Point Programming (POC)**

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.



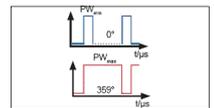
**Multi Point Programming (POM)**

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 setable calibration points.



**Pulse Width Modulation (PWM)**

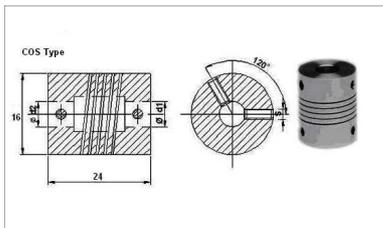
PWM provides a constant carrier frequency which defines high to low ratio. The ratio between high & low corresponds to the signal characteristics. It is in a fixed relation to the angle. Generally, for further signal processing, no A/D converter is required because many microcontrollers already have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



**ACCESSORIES - SPIRAL COUPLINGS**

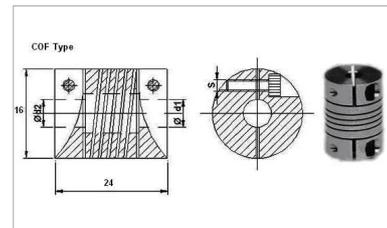
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either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