

**'ANALOG' Output Precision Contactless Rotary Position Sensors**

**Bush Mounting - Sleeve bearing**

- 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**

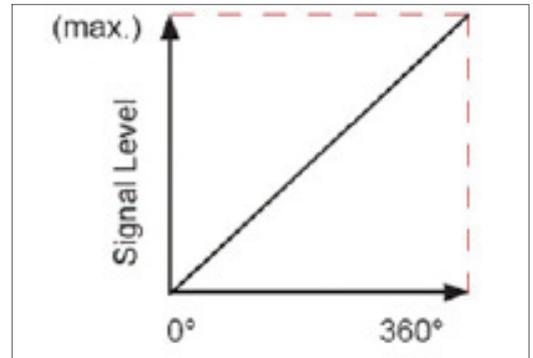


**For full range of Rotary Sensor refer - [www.rotacol.info/rotamec.pdf](http://www.rotacol.info/rotamec.pdf)**

**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.

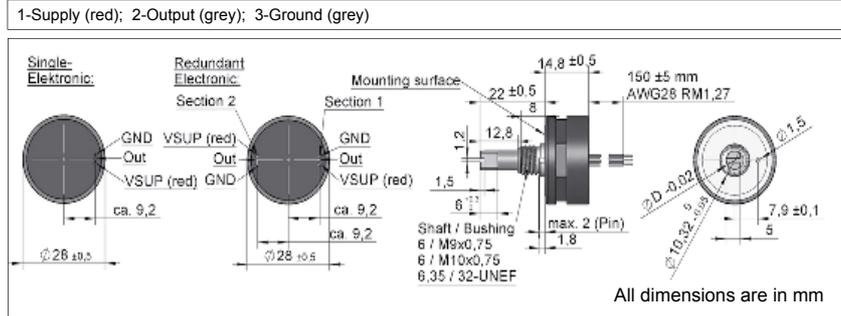
**ANALOG OUTPUT**



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 Output signal level programming, Zero point programming, Centre point programming, Multipoint programming can be provided. Two channel redundant outputs can be provided for voltage outputs.

**Default Version :**

28 mm housing, bush mount ,360° CW Electrical & Mechanical angle, Electrical speed 160 rpm, Low or Medium Torque, Output signal level 0-100%, 3 core flat cable 0.15 mtr long



**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
S0505	5V ±10%	0 - 5V ratiometric
SDC05	9 - 30 V	0 - 5V
S2410	15 - 30 V	0 - 10 V
S2442	15 - 30 V	4 - 20 mA
S2420	15 - 30 V	0 - 20 mA
S05052C	5V ±10%	2 channel 0 - 5V ratiometric
SDC052C	9 - 30 V	2 channel 0 - 5V
S24102C	15 - 30 V	2 channel 0 - 10 V
Supply current	< 16 mA	
Update rate	1 ms	

**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	~15 million rotations
Life: with polymer sleeve bearings	~20 million rotations
End stopper strength	Max 80 Ncm
Operating temperature	- 40 ... +85 °C
Operating torque	0.3 to 0.5 Ncm (Low), 0.5 to 1 Ncm (Medium)
Vibration (IEC 68-2-6, Test Fc)	±1.5 mm / 20g / 2000Hz / 16cycles
Mechanical shock (IEC 68-2-7, Test Ea)	50g /11ms /half sine (3X6 shocks)
Weight	30 gm
Interconnection	3 core flat cable 0.15 mtr long

**MATERIAL**

Bushing	Brass
Bearing	Sleeve bearing - brass (default)
Bearing (option P)	Polymer sleeve bearing (optional) - only for B1
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	Options	Programming options for non - effective electrical angle (only if Elec. angle is < 360°)	Delta 1/2 (default)	Programming options	Output signal level	Low torque (0.3 to 0.5 Ncm )	Medium torque (0.5 to 1 Ncm )	High torque (1.5 to 3 Ncm ) - price adder	Polymer sleeve bearing (only for B1) Torque - 0.3 to 0.5 Ncm	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	Sxxx 0 - 5V DC (ratiometric) 0 - 5V DC 0 - 10V DC 4 - 20mA 0 - 20mA 2 channel 0 - 5V/DC (ratiometric) 2 channel 0 - 5V DC 2 channel 0 - 10V DC	Sxxx Oxxx	Without stop, (default 360°) any angle from 20° to 360° in steps of 1°	Delta 1/2 (default) Low level High level Variable level	POx POL POZ POC POM	Output signal level Zero point Center point Multipoint	Low torque (0.3 to 0.5 Ncm ) Medium torque (0.5 to 1 Ncm ) High torque (1.5 to 3 Ncm ) - price adder			Polymer sleeve bearing (only for B1) Torque - 0.3 to 0.5 Ncm	D	Axx	CVxx
28	A	ERC	Bx	Sxxxx	Sxxx /Oxxx			POx		xT			P	D	Axx	CVxx

Example with description- **28 A ERC B2 S2410 S270 CW POZ LT 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,zero point, Low torque,special shaft length 25 mm FMS, 3 core flat cable 0.15 mtr long

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

### Electrical options for Effective electrical angle :

**Electrical angle (xxx) :** Standard configuration is 360°. As an option, any angle from 0-20° to 0-359° in steps of 1° can be programmed. (Price adder)

**Output Signal level Programming (POL) :** Standard configuration is 0-100%. Output signal can be programmed at any defined lower limit or upper limit in terms of percentage of output. Example : 10% to 90% for S0505 will give output from 0.5V to 4.5V (Price Adder).

#### Direction of Rotation (CW/CCW) :

CW(Clockwise) When shaft is viewed from top, and rotated in clockwise direction, output increases from minimum to maximum value(standard configuration).

CCW(Counter clockwise) when shaft is viewed from top, and rotated in counter clockwise direction, output increases from minimum to maximum value(Price adder).

#### Zero point Programming (POZ) :

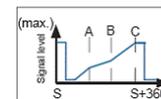
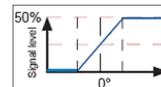
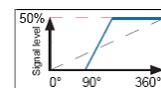
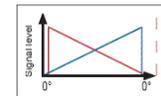
Standard configuration is zero point without orientation. At POZ, when we do zero point programming rising ramp will start from marking on encoder housing or from the endstop CCW. Zero point can also be programmed at any defined offset from marking on the housing (Price Adder).

#### 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 also be programmed at any offset (Price Adder).

#### Multi Point Programming (POM) :

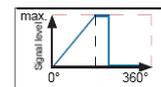
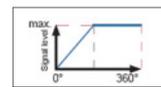
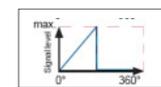
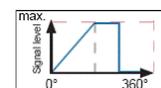
Output characteristics : 3 to 6 rising or falling linear segments. Minimum and maximum signal level can be defined within the total electrical angle. First and last linear segment (min./max.) is always horizontal 1 to 3 settable calibration points. (Price Adder)



### Electrical options for Non - Effective electrical angle (Price Adder) : ( If electrical angle is < 360°)

#### Delta 1/2 (PE1) :

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



#### Low level (PE2) :

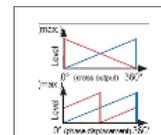
If the electrical effective angle is programmed smaller than 360°, after reaching the maximum, the signal level falls to low level.

#### 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 non-effective electrical angle can be divided into high and low level in any ratio according to customer request.



### 2 Channel Redundant Output (2C) - Special type

**2 Channel Output (2C) :** The sensor provides 2 operating modes: A) Redundancy i.e. channel one and channel two are identical. If one channel fails the other channel remains active. B) It is also possible to have 2 different programs in the 2 channels. For this, additional functions can be obtained.

## MECHANICAL OPTIONS FOR ANALOG VERSION 28A ERCB

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

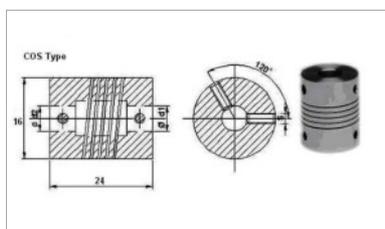
## INTERCONNECTION

**Standard Interconnections** - 3 core flat cable 0.15 mtr long

## ACCESSORIES - SPIRAL COUPLINGS

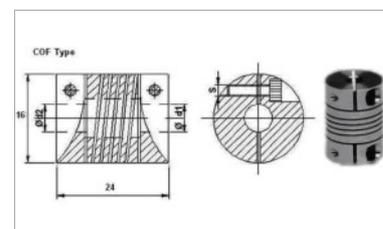
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either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