RotaCol® - *Silverline*

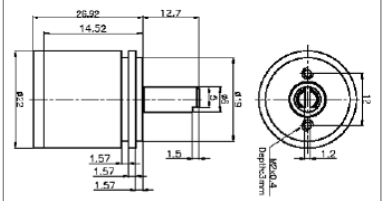
ANALOG CONTACTLESS ROTARY POSITION SENSOR
SERVO MOUNT - 2 PRECISION BALL BEARINGS

Series 22A MSL RCS
Series 22A ZSL RCS

Metalcase - Hall effect magnetic
Precision potentiometer replacement
Output : 0 - 5V, 0 - 10V, 4 - 20 mA, 0 - 20 mA
22 mm Ø metal aluminium housing with 2 precision ball bearings
Servo mount - 2 Ball bearings / Screw fitting
Shock & vibration proof, Measurement range 0° - 360 °

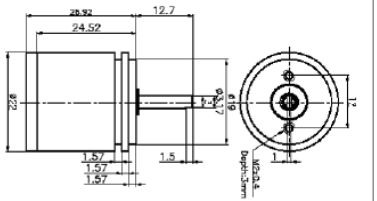
1-Supply (red); 2-Output (grey); 3-Ground (grey) : **For OCF**
2- Supply ; 2-Output ; 3-Ground : **For OCTA , OCTR**

All dimensions are in mm



Metric shaft 22A MSL RCS

All dimensions are in mm



Inch shaft 22A ZSL RCS

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

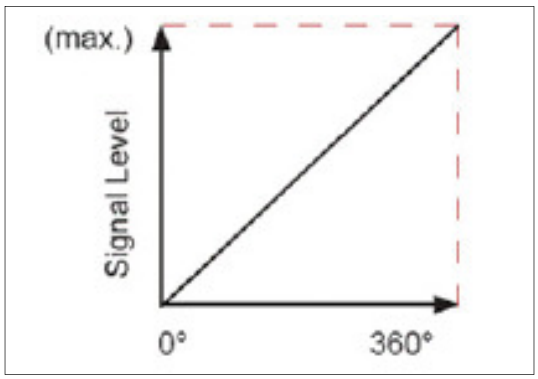
FUNCTION PRINCIPLE

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 - 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)	
Signal type	Supply voltage	Output signal
0505	5V ± 10%	0 - 5V (ratiometric)
DC05	9 - 30V	0 - 5V
2410	15 - 30V	0 -10V
2442	15 - 30V	4 - 20 mA
2420	15 - 30V	0 - 20 mA
Supply current	< 16 mA	
Independent linearity tolerance	± 0.5%	
Update rate	1 ms	

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 - 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, 2 Channel redundant outputs are provided. Other options on request.

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)	
Shaft diameter and length (FMS)	Metric Inch	6 mm Ø X 12.7 mm (MSL) 1/8" Ø X 12.7 mm (ZSL)
Operating torque (approx.)	0.05 Ncm	
Protection	IP 40	
Operating temperature	- 40 to +85° C	
Operating life (approx.)	25 million rotations	
Mechanical speed (max.)	6000 rpm	
Weight	22 gm	
Interconnection	3 core flat cable 0.15 mtr long/ terminal block axial or radial	

MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Bearings	2 precision ball bearings

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

ORDERING INFORMATION

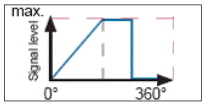
Refer to electrical and mechanical options on page 2

Housing diameter	Analog output	Metric Silverline (Shaft 6 mm Ø)	Inch Silverline (Shaft 1/8" Ø)	RotaCol	Servo mount with 2 ball bearings	Signal	0 - 5V (ratiometric) 0 - 5V 0 - 10V 4 - 20mA 0 - 20mA	2 Channel redundant outputs (only for voltage outputs)	Electrical angle any angle from 0 - 20° to 0 - 360° programmable in steps of 1° (default 360°)	Direction of rotation	Clockwise (CW) - (default) Counter clockwise (CCW)	Programming options for non - effective electrical angle (only if elec. angleis < 360°)	Delta 1/2 Low level High level Variable level	Programming options	Zero point Center point Multipoint	Special shaft length - only for MSL (default length - 12.7 mm FMS)	Special cable length - only for OCF (default 0.15 mtr long)	Output connections	3 Core Flat cable 0.15 mtr long (default) Terminal block Axial Terminal block Radial
22	A	MSL	ZSL	RC	S		S 0505 S DC05 S 2410 S 2442 S 2420	2C	xxx	CW CCW		PEx	PE1 PE2 PE3 PE4	POx	POZ POC POM	Axx	CVxx	OCxx	OCF OCTA OCTR
22	**A**	**xSL**		**RC**	**S**	**Sxxxx**		**2C**	**xxx**	**CW / CCW**		**PEx**		**POx**		**Axx**	**CVxx**	**OCxx**	

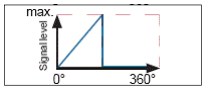
Example with description - **22A MSL RCS S2442 180CW PE1 POZ OCTR -** 22 mm diameter, analog output, Metric Silverline (Shaft 6 mm Ø), RotaCol, Servo mount with 2 ball bearings, Signal - 4-20 mA, 180° angle and clockwise, Delta 1/2, Zero point, Terminal block Radial

ELECTRICAL OPTIONS FOR ANALOG VERSION 22A MSL/ZSL RCS

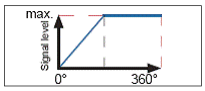
Non-effective Electrical Angle (PE1) - Delta 1/2
If the electrical effective angle is programmed smaller than 360°, the remaining electrical non-effective angle is divided in two equal parts : high level & low level (Delta 1/2)



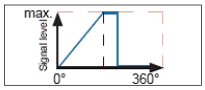
Low level (PE2)
If the electrical effective angle is programmed smaller than 360°, after reaching the maximum, the signal level falls to low level.



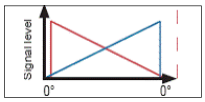
High level (PE3)
If the elecrical angle is programmed smaller than 360°, the signal level remains high after reaching the full level.



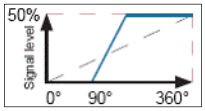
Variable level (PE4)
If the electrical angle is programmed smaller than 360°,remaining electrical non effective angle can be divided into high and low level in any ratio according to customer request.



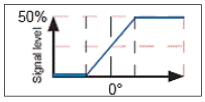
Direction of Rotation (CW/CCW)
By default the direction of rotation is clockwise (CW). With this option it is also possible to change the direction from clockwise(CW) to counterclockwise (CCW).



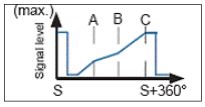
Zero point Programming (POZ)
Mechanical zero point is aligned with marking on the sensor housing. Electrical zero point can be aligned to mechanical zero point. Zero point can be programmed at any offset.



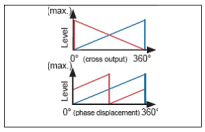
Center Point Programming (POC)
Effective electrical angle is aligned with the mechanical zero point in such a way that equal effective angles in both rotating directions are achieved. Center point can be programmed at any offset.



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 22A MSL/ZSL RCS

Type / Series	Standard mechanical options	Customized mechanical options
22A MSL/ZSL RCS	Terminal Block Axial (OCTA) or terminal block Radial (OCTR)	Special shaft length; special cable length

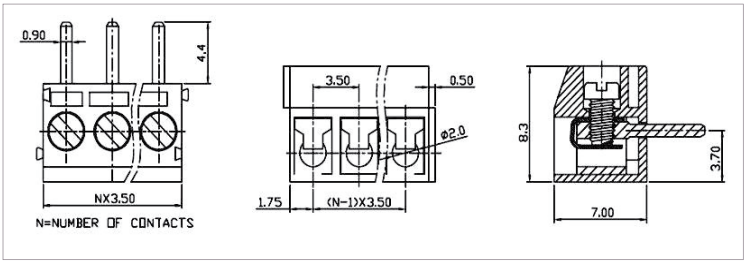
INTERCONNECTIONS

Standard Interconnections - 3 Core flat cable

Other Interconnection options

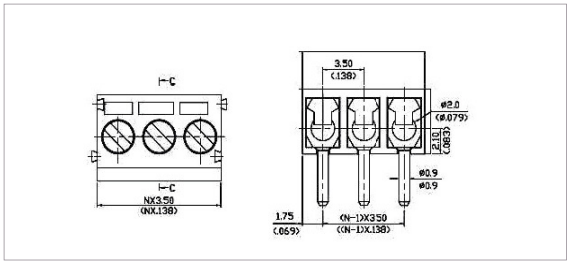
Terminal block - Axial (OCTA)
Wires leaving axial to shaft axis

3 sockets



Terminal block - Radial (OCTR)
Wires leaving radial to shaft axis

3 sockets



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