

Metalcase - Hall effect magnetic

Precision potentiometer replacement

Output : 0 - 5V, 0 - 10V, 4 - 20 mA, 0 - 20 mA

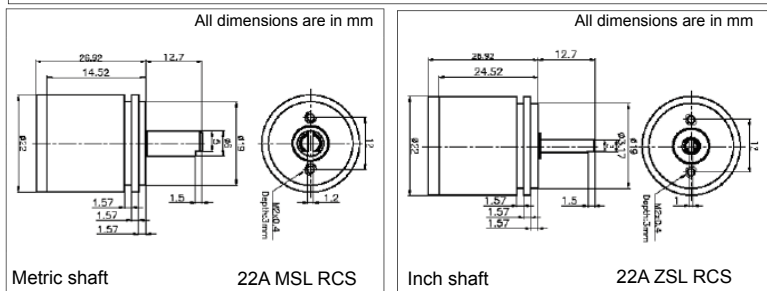
22 mm Ø metal aluminium housing with 2 precision ball bearings

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  
1- Supply ; 2-Output ; 3-Ground : For OCTA , OCTR



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

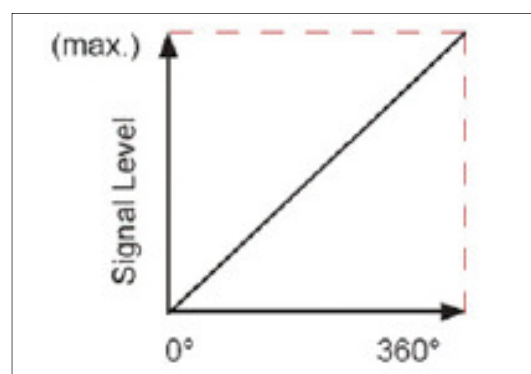
FUNCTION PRINCIPLE

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.

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)  |                              |
| Signal type                     | Supply voltage  | Output signal                |
| S0505                           | 5V ±10%   | 0 - 5V ratiometric           |
| SDC05                           | 9 - 30 V  | 0 - 5V                       |
| S2410                           | 15 - 30 V   | 0 - 10V                      |
| 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   |                              |
| Independent linearity tolerance | ±0.5%   |                              |
| Update rate                     | 1 ms  |                              |

ANALOG INTERFACE



MECHANICAL CHARACTERISTICS

|                                 |  |                        |
|---------------------------------|--|------------------------|
| Mechanical angle                | 360° (continuous)  |                        |
| Shaft diameter and length (FMS) | Metric   | 6 mm Ø X 12.7 mm (MSL) |
|                                 | Inch   | 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.)        | 35 million rotations   |                        |
| Mechanical speed (max.)         | 6000 rpm   |                        |
| Weight                          | 22 gm  |                        |
| Interconnection                 | 3 core flat cable 0.15 mtr long/<br>terminal block axial or radial |                        |

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 Output signal level programming , Zero point programming, Centre point programming, Multipoint programming, 2 Channel redundant outputs are provided. Other options on request.

MATERIAL

|          |                           |
|----------|---------------------------|
| Housing  | Anodized aluminium        |
| Shaft    | Stainless steel           |
| Bearings | 2 precision ball bearings |

Default Version :

22 mm housing, Servo mount , 360° CW Electrical & Mechanical angle, electrical speed 160 rpm, Output signal level 0-100% 3 core flat cable 0.15 mtr long

ORDERING INFORMATION

Refer to electrical and mechanical options on page 2

| 22        | A        | MSL<br>ZSL | RC        | S        | Sxxx         | Signal   | Electrical angle  | Direction of rotation                                 | PEX   | PE1<br>PE2<br>PE3<br>PE4                               | POX  | Axx  | CVxx  | OCxx   |
|-----------|----------|------------|-----------|----------|--------------|--|---|---|---|--|--|--|---|--|
|           |          |            |           |          |              | 0 - 5V DC (ratiometric)<br>0 - 5V DC<br>0 - 10V DC<br>4 - 20mA<br>0 - 20mA<br>2 channel 0 - 5V DC (ratiometric)<br>2 channel 0 - 5V DC<br>2 channel 0 - 10V DC | any angle from 0 - 20° to 0 - 360° programmable in steps of 1° (default 360°) | Clockwise (CW) - (default)<br>Counter clockwise (CCW) | Programming options for non - effective electrical angle (only if elec. angle < 360°) | Delta 1/2<br>Low level<br>High level<br>Variable level | Programming options<br>Output signal level<br>Zero point<br>Center point<br>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<br>3 Core Flat cable 0.15 mtr long (default)<br>Terminal block Axial<br>Terminal block Radial |
| <b>22</b> | <b>A</b> | <b>xSL</b> | <b>RC</b> | <b>S</b> | <b>Sxxxx</b> |  | <b>xxx</b>  | <b>CW / CCW</b>                                       | <b>PEx</b>  |  | <b>POx</b>   | <b>Axx</b>   | <b>CVxx</b>   | <b>OCxx</b>  |

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 clockwise, Delta 1/2, Zero point, Terminal block Radial

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 this application. Megacraft does not warrant the reproducibility of published information. The specifications can be changed any time without notice.

## ELECTRICAL OPTIONS FOR ANALOG VERSION 22A MSL/ZSL RCS

### 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) :

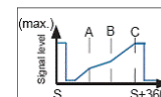
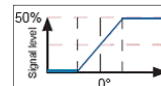
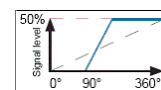
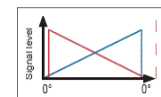
Standard configuration is zero point without orientation. At POZ, when we do zero point programming rising ramp will start from marking on encoder housing or from the endstop CCW. Zero point can also be programmed at any defined offset from marking on the housing (Price Adder).

### 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) :

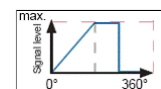
Output characteristics : 3 to 6 rising or falling linear segments. Minimum and maximum signal level can be defined within the total electrical angle. First and last linear segment (min./max.) is always horizontal 1 to 3 setable calibration points. (Price Adder)



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

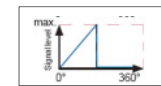
#### Delta 1/2 (PE1) :

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.



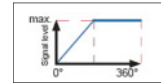
#### Low level (PE2) :

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



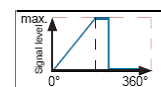
#### High level (PE3) :

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



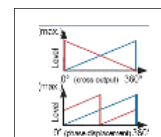
#### Variable level (PE4) :

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 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 cable length | Special shaft length          |

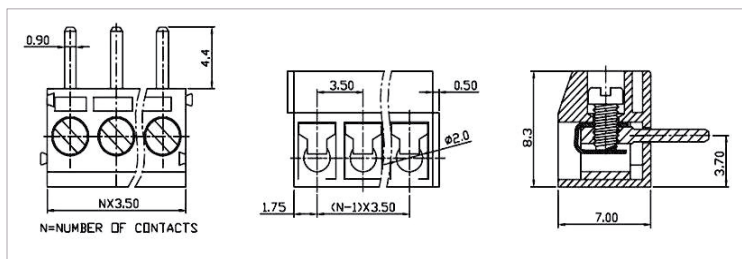
## INTERCONNECTIONS

Standard Interconnections - 3 Core flat cable

### Other Interconnection options

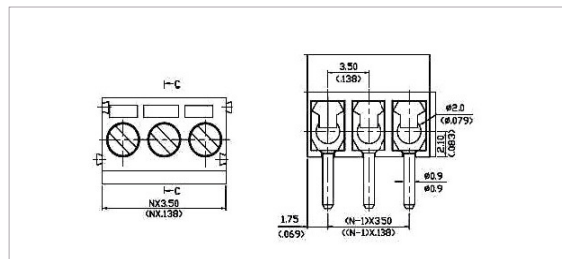
#### Terminal block - Axial (OCTA) Wires leaving axial to shaft axis

3 sockets



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

3 sockets



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