

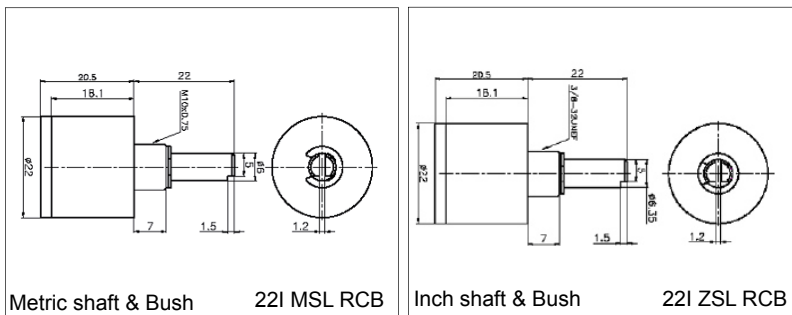
RotaCol® - Silverline PRECISION INCREMENTAL CONTACTLESS ROTARY POSITION SENSOR

Series 22I MSL RCB
Series 22I ZSL RCB

Economical Hall effect magnetic sensor
A - B - Z channels- Any pulse from 2 - 128 programmable, 256, 512, 1024 ppr
Robust metal aluminium housing
Bush mounting
Shock & vibration proof
Measurement range 0° - 360 °



www.rotacol.info/22imslrcb.pdf
www.rotacol.info/22izslrcb.pdf



All dimensions are in mm

1-Supply (red) 2-Ch Z (grey) 3-Ch B (grey) 4-Ch A (grey) 5-Ground (grey)

ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°
Pulses	Any pulse from 2 to 128, 256, 512, 1024 ppr
Resolution	4096 step (12 bit)
Supply voltage	5V ± 10% / 9 - 30 VDC
Output signal	5V TTL, 5V / 24V Open collector
Supply current	< 30 mA
Frequency response	10 KHz

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Starting torque (approx.)	0.5 Ncm
Protection	IP 40
Operating temperature	- 40 to +85° C
Operating life (approx.)	5 million rotations
Mechanical speed (max.)	1000 rpm
Electrical speed (max.)	1600 rpm
Weight	22 gm

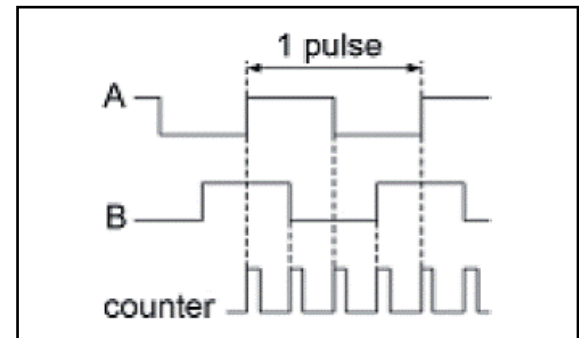
MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Cable	5 core flat cable (150 mm)

FUNCTION PRINCIPLE

A magnet rotates over the sensor IC with 4 Hall sensors for angular determination and converts the magnetic field into a measurable Hall voltage. When the magnet rotates around the longitudinal axis, sine and cosine voltages are generated to determine the angles. Two separate sine/digital converters provide A, B, Z incremental signals.

INCREMENTAL INTERFACE



There are 3 signals for incremental output : A, B and Z. Signals A and B are quadrature signals, shifted by 90° and signal Z is a reference mark. One revolution generates N pulses of signal A or B. The reference mark signal is produced once per revolution. The width of the Z pulse is 1/4 of quadrature signal period and is matched with A high and B high. Generally, the magnetic incremental encoders are directly comparable with the conventional optical incremental encoders. They provide additional features and can much easier be adjusted to customer requirements. Nevertheless optical and magnetic incremental encoders do not provide an absolute signal.

OPTIONS AND ORDERING REFERENCES

Refer to electrical and mechanical options on page 2

Housing diameter	Incremental output	Metric Silverline (Bush Thread M10 & Shaft Ø 6mm)	Inch Silverline (Bush Thread 3/8" & Shaft 1/4")	RotaCol	Bush version	Signal	No of Pulses	Clockwise (CW) Counter clockwise (CCW)	Programming options	Output connections
22	I	MSL	ZSL	RC	B	5V TTL 5V Open collector 24V Open collector	Any pulse from 2 - 128 programmable, 256, 512, 1024 ppr	CW CCW	POx POZ POI	OCxx OCF OCTA OCTR
22	I	xSL		RC	B	Sxxxx	xxxx	CW / CCW	POx	OCxx

Example with description - **22I ZSL RC B S05TTL 512 CW POZ OCTA** - 22mm diameter, incremental output, Inch Silverline (Bush Thread 3/8" & Shaft 1/4"), Bush version, 5V TTL, 512 pulses, clockwise, Zero point, Terminal block Axial
Standard Version : 360° CW Electrical & Mechanical angle, 1024 ppr , OCF - 5 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.

Rotary incremental magnetic encoders and sensors - are angular position sensors with an integrated signal conditioning unit, which generates constant amplitude sine and cosine voltages which are used for angle calculation. The maximum resolution is 4096 angular measurements per revolution (0.1°). Like in the standard optical incremental encoders a rising and falling edge at channel A and channel B is available. Thus the rotational direction can be detected. The quadrature signal consist of 2 wave signal out of phase. The Z channel enables the counter to be reset to zero with the function of a non true power on absolute encoder. The programming of the position for the reference "Z" impulse in a relation to the marking on the shaft and housing can be factory set. Contrary to optical encoders, any pulse between 2 - 128 pulses per revolution can be programmed by software without disc change.

Number of Pulses & Direction (xxxx CW / CCW)

As a unique feature any number of pulses from 2 - 128 pulses per revolution (ppr) can be programmed in a 3 channel configuration. Above 128 ppr the following resolutions are possible as std option: 256, 512. Default is 1024 ppr. The default direction of rotation is clockwise (CW). With this option it is also possible to change direction from clockwise(CW) to counter clockwise (CCW).

Start Up Performance

In the basic default version, when the sensor is switched on, first the output A-B pulses are received only if the shaft rotates. After reaching the Z pulse it is used for resetting the counter (identical to optical encoders). In this option, when the electronic is switched on, the A and B output pulses are received automatically till the Z pulse is reached. Then the counter can be reset without rotating the shaft. From this point, the A, B and Z outputs are received corresponding to the shaft rotation.

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.

Z Pulse

A counter which is connected to the sensor is reset once per revolution by the Z - pulse. Within one rotation a simulation of non - true power on encoder is possible. In the basic type the counter is reset manually.

Inverted Signal (POI)

The channels A and B can be inverted or not inverted independent of each other. The basic type is not inverted.

MECHANICAL OPTIONS FOR INCREMENTAL VERSION 22I MSL / ZSL RCB

Type / Series	Standard mechanical options	Customized mechanical options
22I MSL / ZSL RCB	Terminal Block (OCTA / OCTR)	Special shaft length

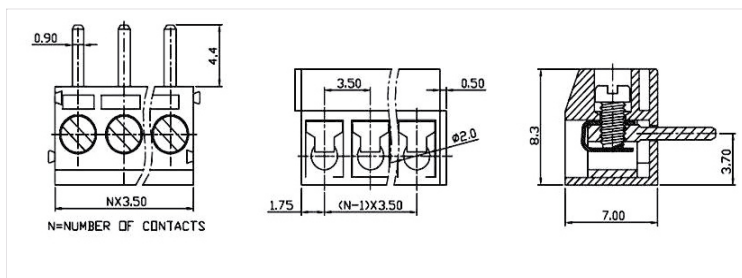
INTERCONNECTIONS

Standard Interconnections - 5 Core flat cable

Other Interconnection options

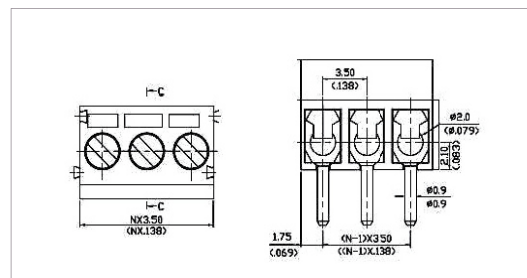
Terminal block - Axial (OCTA)
Wires leaving axial to shaft axis

5 sockets



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

5 sockets



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