

RotaCol® - Silverline

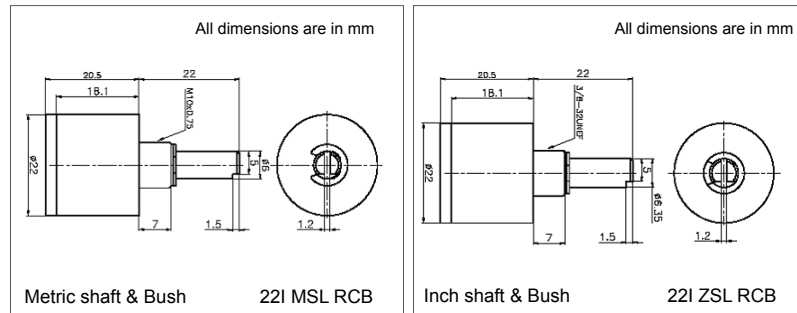
INCREMENTAL HALL CONTACTLESS ROTARY POSITION SENSOR, BUSH MOUNTING - SLEEVE BEARING

Series 22I MSL RCB
Series 22I ZSL RCB



Economical Hall effect magnetic sensor
A - B - Z channels- Any pulse from 2 - 128, 256, 512, 1024 ppr programmable
Robust metal aluminium housing, 22 mm Ø housing
Bush mounting - sleeve bearing , Shock & vibration proof
Measurement range 0° - 360°

1-Supply (red); 2-Ch Z (grey); 3-Ch B (grey); 4-Ch A (grey); 5-Ground (grey) : **For OCF**
 1-Supply ; 2-Ch Z ; 3-Ch B ; 4-Ch A ; 5-Ground : **For OCTA, OCTR**

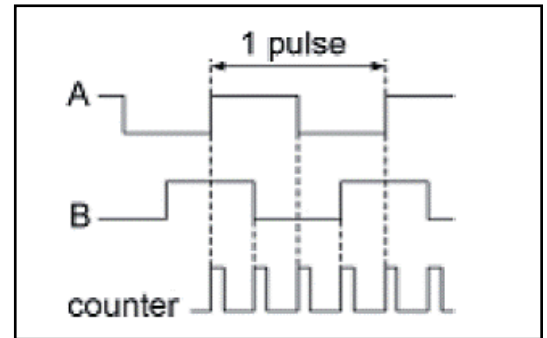


**For full range of Rotary Sensors refer -
www.rotacol.info/rotamec.pdf**

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.

Default Version : 360° CW Electrical & Mechanical angle, 1024 ppr , 5 core flat cable 0.15 mtr long

ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°
Electrical speed (max.)	1600 rpm
Elec. 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	500 KHz

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)		
Bushing	Metric	M10 X 0.75	(MSL)
	Inch	3/8" X 32 UNEF	(ZSL)
Shaft diameter and length (FMS)	Metric	6 mm Ø X 22 mm	(MSL)
	Inch	1/4" Ø X 22 mm	(ZSL)
Operating torque (approx.)	0.2 - 0.3 Ncm		
Protection	IP 40		
Operating temperature	- 40 to +85° C		
Operating life (approx.)	5 million rotations		
Mechanical speed (max.)	1000 rpm		
Weight	22 gm		
Interconnection	5 core flat cable 0.15 mtr long / terminal block axial or radial		

MATERIAL

Housing with bushing	anodized aluminium
Bearing	sleeve bearing
Shaft	stainless steel

ORDERING INFORMATION

Refer to electrical and mechanical options on page 2

Housing diameter	Incremental output	Metric Silverline (Bush Thread M10X0.75 & Shaft 6mm Ø)	Inch Silverline (Bush Thread 3/8"X32TPI & Shaft 1/4" Ø)	RotaCol	Bush mount -sleeve bearing	Signal	No of Pulses	Counting direction (CW) - (default) Counter clockwise (CCW)	Programming options	Zero point Inverted signal	Special shaft length (default 22 mm)	Special cable length- only for OCF (default 0.15 m)	Output connections
22	I	MSL	ZSL	RC	B	S05TTL S05OC S24OC	xxxx Any pulse from 2 - 128, 256, 512, 1024 ppr programmable (default 1024 ppr)	CW CCW	POx POZ POI		Axx	CVxx	OCxx OCF OCTA OCTR
22	I	xSL	RC	B	Sxxxx	xxxx	CW / CCW	POx	Axx	CVxx	OCxx		

Example with description - **22I ZSL RCB S05TTL 512 OCF** - 22mm diameter, incremental output, Inch Silverline (Bush Thread 3/8"X 32 TPI & Shaft 1/4" Ø), Bush mount, 5V TTL, 512 pulses, 5 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 this application. Megacraft does not warrant the reproducibility of published information. The specifications can be changed any time without notice.

ELECTRICAL OPTIONS FOR INCREMENTAL VERSION 22I MSL/ZSL RCB

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 (xxxx)

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 and 1024. **Default is 1024 ppr.**

Direction of rotation (CW / CCW)

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)

It is possible to position the Z Pulse in line with the marking on the shaft and the bushing.

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 Axial (OCTA) / Terminal block Radial (OCTR)	Special shaft length

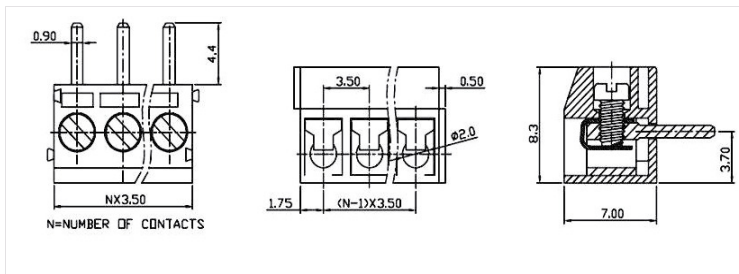
INTERCONNECTIONS

Standard Interconnections - 5 Core flat cable

Other Interconnection options

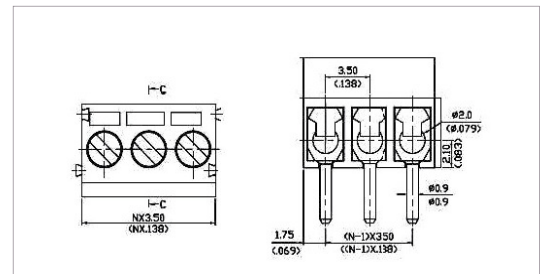
Terminal block - Axial (OCTA) Wires leaving axial to shaft axis

5 sockets



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

5 sockets



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