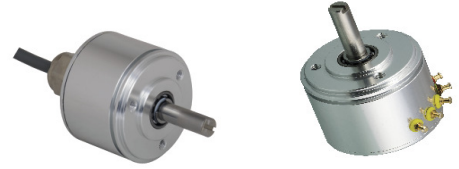


RotaCol® - Silverline PRECISION SPI DIGITAL CONTACTLESS ROTARY POSITION SENSOR

Economical Hall effect magnetic sensor
Direct SPI interface to microcontroller
Robust metal aluminium housing with 2 ball bearings
Servo mount / Screw fitting
Shock & vibration proof
Measurement range 0° - 360°

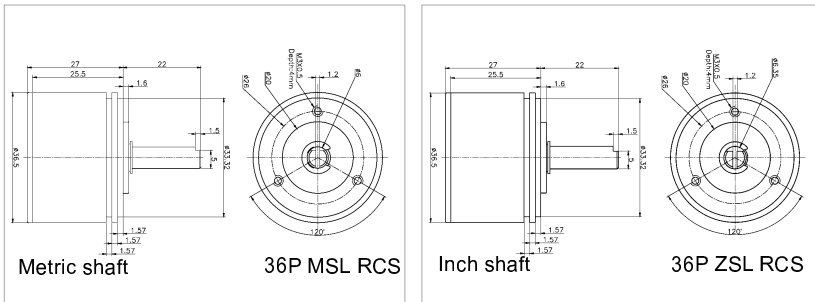
Series 36P MSL RCS
Series 36P ZSL RCS



Interconnection : cable gland with
1 m cable - OCG (price adder)

Interconnection : 5 soldering
pins OCP-(standard)

www.rotacol.info/36pmslracs.pdf
www.rotacol.info/36pzslracs.pdf



All dimensions are in mm

1 - Supply (red) 2 - Ground (black) 3 - Output (yellow) 4 - Clock (yellow) 5 - Chip select (yellow)

ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°
Resolution	14 bit (16383 steps)
Supply voltage	5V ± 10%
Supply current	< 30 mA
Output signal	Absolute SPI
Frequency response	5 KHz
Update rate	0.6 ms

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Operating torque (approx.)	0.05 Ncm
Protection	IP 40
Operating temperature	- 40 to +85° C
Operating life (approx.)	35 million rotations
Mechanical speed (max.)	8000 rpm
Electrical speed (max.)	800 rpm
Weight	60 gm

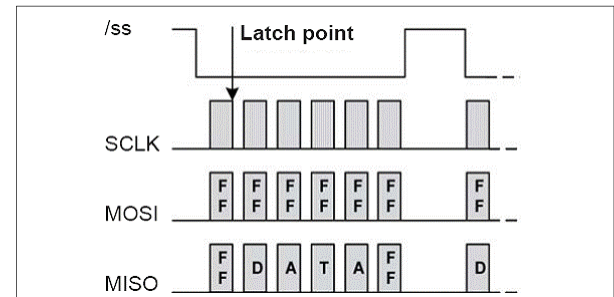
MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Terminals	5 pins
Bearings	2 precision ball bearings

FUNCTION PRINCIPLE

The angular position and the signal generation is detected by a CMOS Hall sensor over which a parallel diametrically polarized magnet induces a magnetic field. An integrated electronic provides the output of a 2 byte WORD with an SPI interface.

SERIAL PERIPHERAL INTERFACE



The serial peripheral interface (SPI) is a bus system for a serial synchronous data transmission between different integrated circuits. The bus consists of 3 lines MOSI (Master Out --> Slave In), MISO (Master In <-- Slave Out), SCLK - (Serial Clock, output from master) and SS Slave Select (active low; output from master). By these signal lines the master selects the slave for communication. This is done because the master sets the SS line from high to low. The angular informations are calculated all 350 and are available for the master on demand. There is no fixed protocol for the SPI bus. Nevertheless many microcontroller IC's have a SPI input. By programming this microcontroller IC many SPI suitable sensors can be managed by one microcontroller.

OPTIONS AND ORDERING REFERENCES

Refer to electrical and mechanical options on page 2

Housing diameter	Serial peripheral interface (SPI) output	Metric Silverline (Shaft Ø 6 mm)	Inch Silverline (Shaft 1/4")	RotaCol	Bush mount with 2 ball bearings	Signal	5V	2 Channel output	14 bit output	Clockwise (CW) Counter clockwise (CCW)	Programming options	Zero point	Output connections
36	P	MSL	ZSL	RC	S	05 SPI		2C	S14	CW CCW	POx POZ		OCxx OCP OCF OCM OCG OCTA OCTR
36	P	xSL		RC	S	05 SPI		2C	S14	CW / CCW	POx		OCxx
Example with description - 36P MSL RCS 05SPI S14 CW POZ OCF - 36 mm diameter, SPI output, Metric Silverline (Shaft Ø 6 mm), RotaCol, Servo mount with 2 ball bearings, 5V SPI, 14 bit output, clockwise, Zero point, 5 core flat cable Standard Version : 360° CW Electrical & Mechanical angle, 5V SPI, OCP - 5 pins													

For complete RotaCol Contactless Rotary Sensor product range refer - www.rotacol.info/rotamec.pdf

ELECTRICAL OPTIONS FOR SPI VERSION 36P MSL / ZSL RCS

SPI Bus Interface

The Serial Peripheral Interface bus or SPI bus is a synchronous serial data link standard developed by Motorola that operates in full duplex mode. One or more devices can communicate with one master. The length of the signal wire should not be longer than 0.5m. To bridge larger distances it is recommended to use the SSI interface. The digital signal in 2 byte Grey code transmits the angular position information through the data bus.

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.

2 Channel Output (2C)

The Hall sensor chip which is integrated into the sensor consists of two galvanically separated sensor units which are influenced by the same magnetic field. The sensor provides 2 operating modes: 1) redundancy i.e. channel one and channel two are identical. If one channel fails the other channel remains active. 2) It is also possible to have 2 different programs in the 2 channels. For this, additional functions can be obtained.

MECHANICAL OPTIONS FOR SPI VERSION 36P MSL / ZSL RCS

Type / Series	Standard mechanical options	Customized mechanical options
22P MSL / ZSL RCS	Cable gland (OCG) ; Terminal Block (OCTA / OCTR) ; Miniature connector (OCM)	Special shaft length ; Special cable

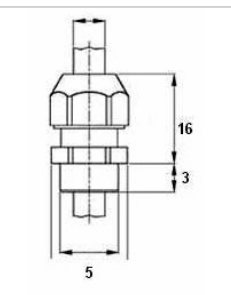
INTERCONNECTIONS

Standard Interconnections - 5 Core flat cable

Other Interconnection options

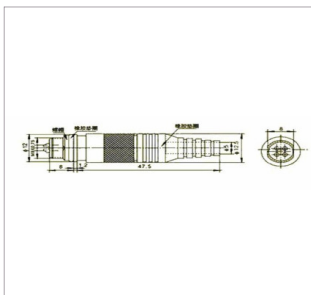
Cable gland (OCG)

5 core cable of 1 m length



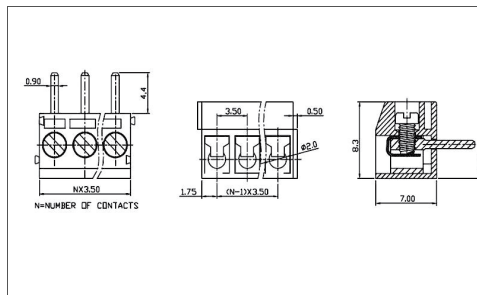
Miniature connector (OCM)

5 pin in integrated socket with plug



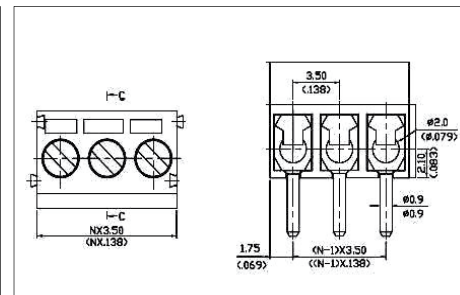
Terminal block - Axial (OCTA) Wires leaving axial to shaft axis

5 sockets



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

5 sockets



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