

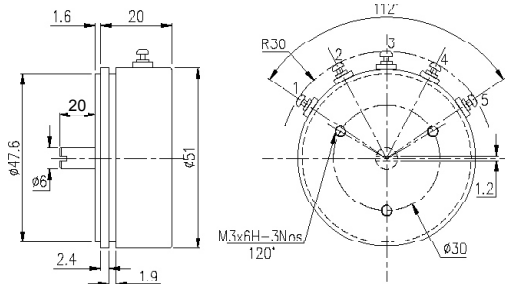
RotaCol® - Silverline PRECISION SPI DIGITAL CONTACTLESS LONG LIFE ROTARY POSITION SENSOR

Series 50P MSL RCS

Servomount case - 2 Ball bearing
Hall effect magnetic
Direct SPI interface to microcontroller
Precision robust aluminium housing
Robust metal aluminium housing with ball bearing
Synchro size 20, shock & vibration proof
Measurement range 0° - 360°



www.rotacol.info/50pmslracs.pdf



1 - Supply(green) 2 - Ground(Grey) 3 - Output(Grey) 4 - Clock(Grey) 5 - Chip select(Grey)

All Dimensions are in mm.

ELECTRICAL CHARACTERISTICS

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

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Starting torque (approx.)	0.4 Ncm
Protection	IP 40
Operating temperature	- 40 to +85° C
Operating life (approx.)	40 million rotations
Mechanical speed (max.)	9000 rpm
Electrical speed (max.)	800 rpm
Weight	77 gm

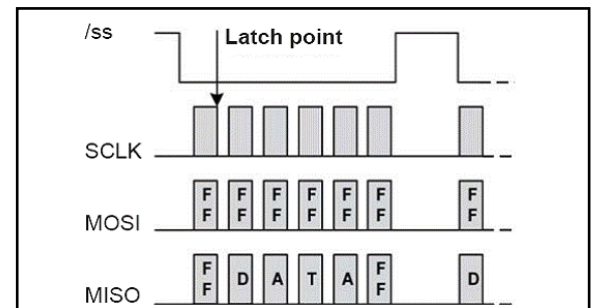
MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Terminals	5 pins brass gold plated
Bearings	2 precision ball bearing

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	SPI output	Metric Silverline (Shaft Ø 6mm)	RotaCol	Servomount - with 2 ball bearings	Signal	5V	2 Channel redundant output	Rotational direction	Clockwise (CW) Counter clockwise (CCW)	14 bit output	Programming options	Zero point	Output connections	5 Pins 5 Core Flat cable Miniature connector Cable gland with 1m round cable Terminal block Axial Terminal block Radial
50	P	MSL	RC	S	05 SPI		2C		xxxx CW xxxx CCW	S 14	POx POz		OCx OCP OCF OCM OCG OCTA OCTR	

50 P MSL RC S 05 SPI 2C xxxx CW / CCW S14 POx OCP OCF OCM OCG OCTA OCTR

Example with description - **50P MSL RCS 05SPI CCW POZ OCM** - 50mm diameter, SPI output, Metric Silverline (Shaft Ø 6 mm), RotaCol sensor, Servomount, Signal - 5V, counter clockwise, zero point, Miniature connector

Standard Version : 360° CW Electrical & Mechanical angle, OCP - 5 pins

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.

ELECTRICAL OPTIONS FOR SPI VERSION 50P MSL RCS

RotaCol® are the latest development in rotational position sensors and contactless devices. Modern Hall IC's in combination with special magnets and RISC processors provide intelligent customizing of putput signals and interfacing. Not only precision potentiometer but also optoelectronic incremental and absolute encoders are replaced. The RotaCol® series is divided into 3 groups : analog types with analog output (replacement for precision potentiometer), incremental output (replacement of optoelectronic encoders), absolute digital SPI and SSI output. Because of wide variety of mechanical and electrical options it is possible to use them in almost any automation and control application where rotary angular sensing is required. Regardless of the wide variety of existing technical features, the price is relative low.

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)

The standard direction of rotation is clockwise (CW). It is also possible to change the direction of turning to counter clockwise mode (CCW).

Zero Point Programming (POZ)

The electrical zero point is at the beginning of the signal rise. If a shaft marking is brought in line with the housing marking, the electrical zero point can be set to that position. Beside that it is also possible to position the zero point at any position within the mechanical angle. In any case it is necessary to have a reference to the shaft marking.

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 50P MSL RCS

Type / Series	Standard mechanical options	Customized mechanical options
50P MSL RCS	Cable gland (OCG) ; Terminal Block (OCTA / OCTR) ; Miniature connector (OCM)	Special shaft length ; Special cable

INTERCONNECTIONS

Standard Interconnections - 5 Pins

Cable gland (OCG)

Miniature connector (OCM)

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

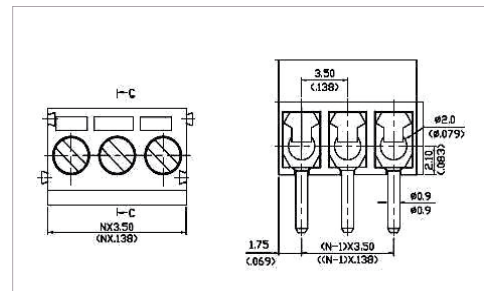
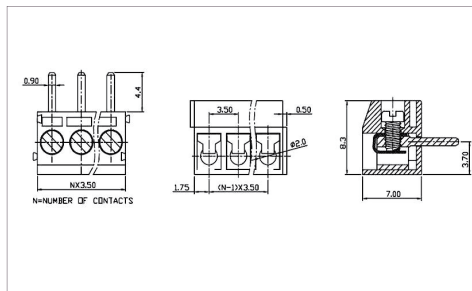
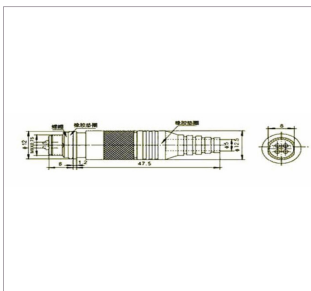
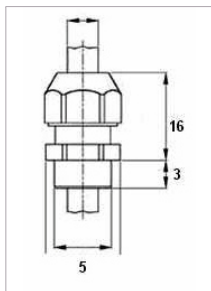
**Terminal block - Radial (OCTR)
Wires leaving radial to shaft axis**

5 core cable of 1 m length

5 pin in integrated socket with plug

5 sockets

5 sockets



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