

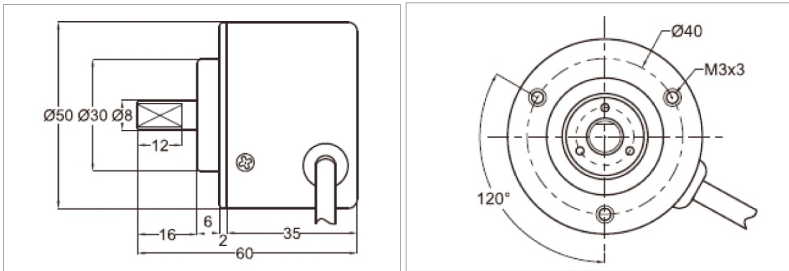
RotaCol® - Diamondline PRECISION SPI DIGITAL CONTACTLESS LONG LIFE ROTARY POSITION SENSOR

50P DRCW

- Servomount case - 2 Ball bearing
- Hall effect magnetic
- Direct SPI interface to microcontroller
- Robust metal aluminium housing with ball bearing
- Clamping flange with 3 screws.
- Shock & vibration proof
- Measurement range 0° - 360°



www.rotacol.info/50pdrw.pdf



All dimensions are in mm

1 - Supply(Green) 2 - Ground(White) 3 - Output(Brown) 4 - Clock(Grey) 5 - Chip select(Yellow)

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)
Shaft diameter	8 mm
Protection	IP 54
Operating temperature	- 20 to +80° C
Operating life	~ 75 million rotations
Mechanical speed (max.)	5000 rpm
Electrical speed	800 rpm
Weight	270 gm

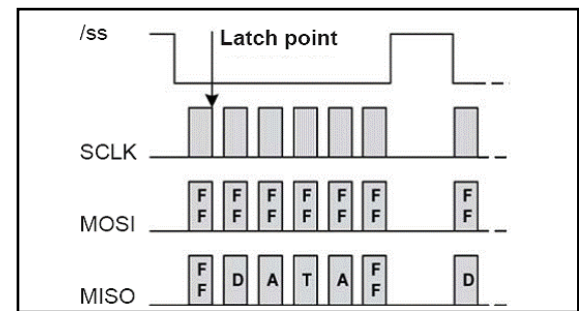
MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Cable	2.5m long round cable - radial
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	Diamondline	RotaCol	Clamping flange with 3 screws	Signal	5V	2 Channel redundant output	Rotational direction	Clockwise (CW) Counter clockwise (CCW)	14 bit output	Programming options	Zero point	Output connections
50	P	D	RC	W	05 SPI		2C		CW CCW	S 14	POX POZ		OCR OCM OCG OCTA OCTR
50	P	D	RC	W	05 SPI		2C		CW / CCW	S 14	POx		OCxx

Example with description - **50P DRCW 05SPI CCW POZ S14 2C OCTR** - 50 mm diameter, SPI output, Diamondline, Rotacol Servomount with 2 ball bearings, Signal - 5V, counter clockwise, zero point, 14 bit output, 2 channel redundant output, Terminal block radial
Standard Version : 360° CW Electrical & Mechanical angle, 2.5m long round cable - radial

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 DRCW

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 is it 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 DRCW

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

INTERCONNECTIONS

Standard Interconnections - 5 Core round cable - radial (2.5m long)

Cable gland (OCG)

Miniature connector (OCM)

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

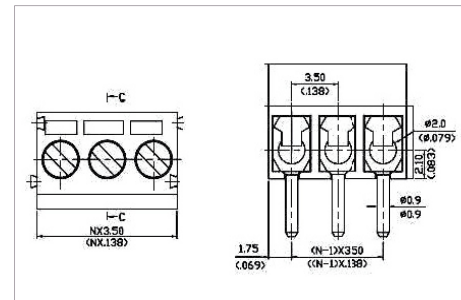
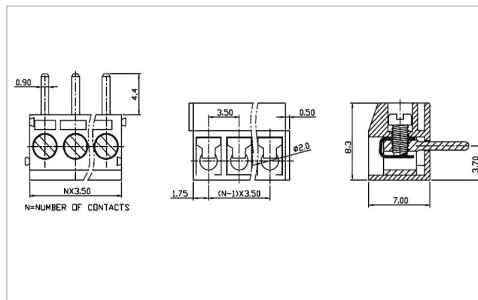
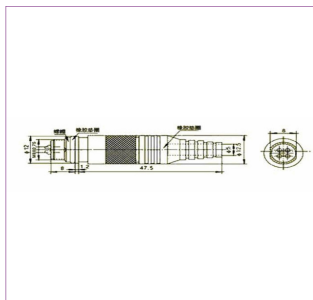
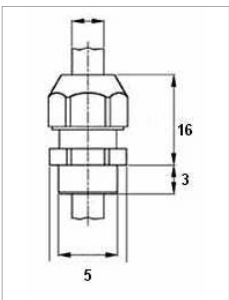
**Terminal block - Radial (OCTR)
Wires leaving radial to shaft axis**

5 core cable of 2.5 m length

5 pin in integrated socket with plug

5 sockets

5 sockets



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