

RotaCol® - Diamondline

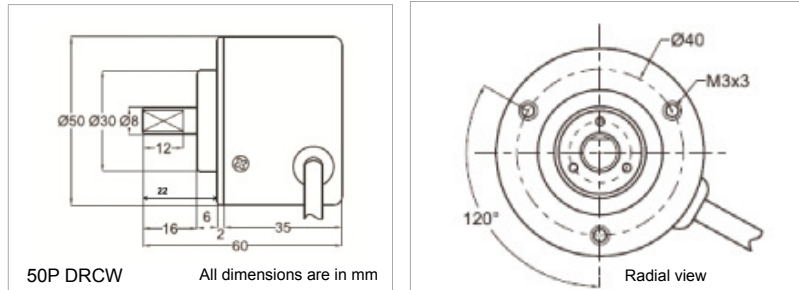
SPI DIGITAL CONTACTLESS ROTARY POSITION SENSOR CLAMPING FLANGE - 2 PRECISION BALL BEARINGS

50P DRCW



Heavy duty - metalcase - 2 Ball bearing
Hall effect magnetic
Direct SPI interface to microcontroller, SPI - 3 wire
50 mm Ø robust metal aluminium housing with ball bearing
Clamping flange with 3 screws
Shock & vibration proof, Measurement range 0° - 360°

1-Supply(Yellow); 2-Ground (White); 3- MOSI / MISO(Brown); 4-Clock(Grey) 5-Clock(Green) : For OCG, OCR
 1-Supply; 2-Ground; 3- MOSI / MISO; 4- Clock; 5-Chip select : For OCM, OCTR, OCTA



ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°	
Electrical speed (max.)	800 rpm	
Resolution	14 bit (16383 steps)	
Signal	Supply voltage	Output signal
S05SPI	5V±10%	SPI - 3 wire
Supply current	< 30 mA	
Frequency response	5 KHz	
Update rate	0.6 ms	

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Shaft diameter X length (FMS)	8 mm Ø x 22 mm
Protection	IP 54
Operating torque	0.05 Ncm
Operating temperature	- 40 to +85° C
Rotational life	~ 75 million rotations
Mechanical speed (max.)	5000 rpm
Weight	250 gm
Interconnection	5 core round cable 2.5 mtr long

MATERIAL

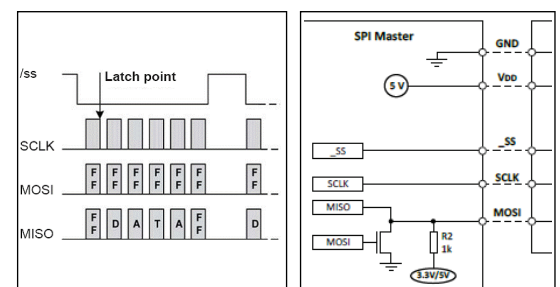
Housing	anodized aluminium
Shaft	stainless steel
Bearings	2 precision ball bearing

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

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 / MISO (one common line), 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. Two channel redundant outputs can be provided.

Default Version : 360° CW Electrical & Mechanical angle, 5V SPI - 3 wire, 5 core round cable 2.5 mtr long

ORDERING INFORMATION

Refer to electrical and mechanical options on page 2

Housing diameter	Serial peripheral Interface (SPI)	Diamondline	RotaCol	Clamping flange with 3 screws	Signal	5V SPI - 3 wire	2 Channel redundant output	14 bit output	Without stop (default 360°)	Direction of rotation	Programming options	Special shaft length (default length - 22 mm FMS)	Output connections
50	P	D	RC	W	S05SPI	2C	S14	O360		Clockwise (CW) - (default) Counter clockwise (CCW)	POx POZ	Axx	OCxx
50	P	D	RC	W	S05SPI	2C	S14	O360		CW / CCW	POZ	Axx	OCxx

Example with description - **50P DRCW S05SPI CCW POZ S14 2C OCG** - 50 mm diameter, SPI output, Diamondline, Rotacol, clamping flange with 3 screws, 5V SPI - 3 wire, counter clockwise, zero point, 14 bit output, 2 channel redundant output, Cable gland with 2.5m long round cable

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.

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 2.5m long - radial

Cable gland (OCG)

5 core cable 2.5 mtr long

Miniature connector (OCM)

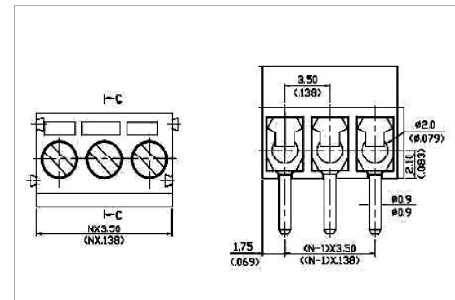
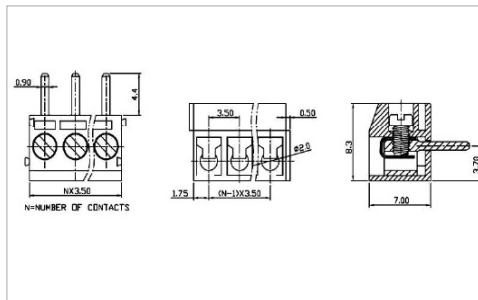
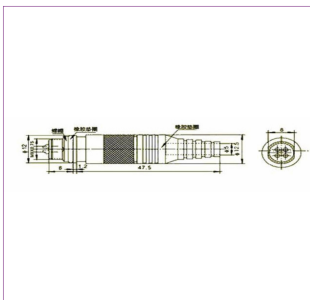
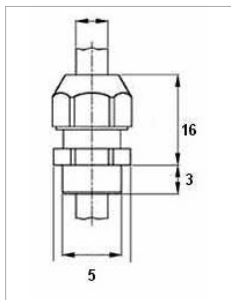
5 pin in integrated socket with plug

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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