

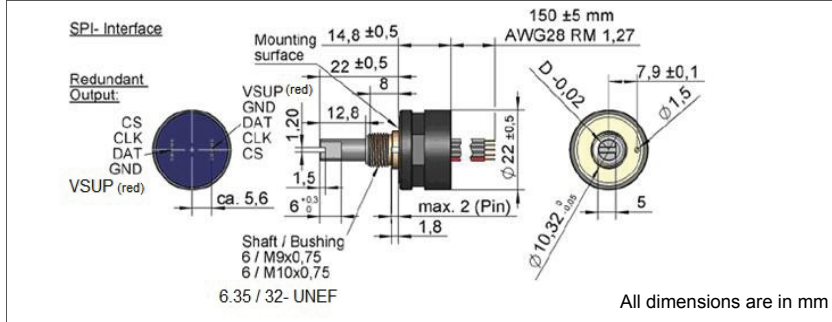
RotaCol® - Ecoline PRECISION SPI DIGITAL CONTACTLESS ROTARY POSITION SENSORS - BUSH MOUNTING

Series 22P ERCB



**SPI - 3 wire - half duplex,
Economical - SPI digital - interface - 22 mm housing
Direct SPI interface to microcontroller
Bush mounting
Shock and vibration proof**

1-Supply (red) 2-Ground (grey) 3-MOSI/ MISO (grey) 4-Clock (grey) 5-Chip select (grey)



ELECTRICAL CHARACTERISTICS

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

MECHANICAL CHARACTERISTICS

Mechanical angle	(O) 360° without stop (S) 320° +5° / - 0° with stop
Mechanical speed (Max.)	800 rpm (brass), 3000 rpm (polymer bearing)
Shaft diameter x length (FMS)	6 mm or 1/4 inch Ø X 22 mm
Life: with brass sleeve bearings	~10 million rotations
Life: with polymer sleeve bearings	~15 million rotations
End stopper strength	< 80 Ncm
Operating temperature	- 40 ... +85 °C
Operating torque (Medium.)	0.5 -1 Ncm (default)
Vibration (IEC 68-2-6, Test Fc)	±1.5 mm / 20g / 2000Hz / 16cycles
Mechanical shock (IEC 68-2-7, Test Ea)	50g /11ms /half sine (3X6 shocks)
Weight	25 gm
Interconnection	5 core flat cable 0.15 mtr long

MATERIAL

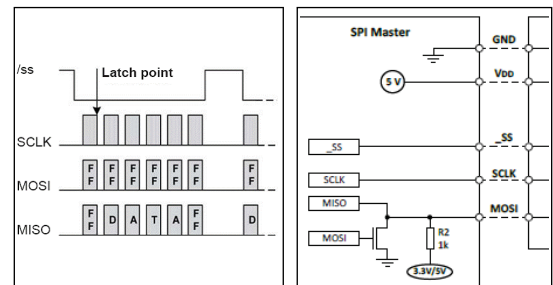
Bushing	brass
Bearing - standard	brass bearing
Bearing type: option P	polymer sleeve bearing
Housing	Nylon 66 Glass Fibre reinforced
Shaft	stainless steel

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, medium Torque, 5V SPI - 3 wire, 5 core flat cable 0.15 mtr long

ORDERING INFORMATION

Refer to electrical and mechanical options on page 2

Housing diameter	Serial peripheral interface (SPI)	Ecoline RotaCol	Bush mounting	Signal	Output	Zero point	Torque	Bearing	Shaft seal	Special shaft length	Special cable length
22	P	ERC	B1 B2 B3	S05SPI	2C S14	POZ	LT MT HT	P	D	Axx	CVxx
22	P	ERC	Bx	S05SPI	2C S14	POZ	xT	P	D	Axx	CVxx

Example with description - **22P ERC B3 S05SPI S14 O360 CW POZ** - 22 mm housing, SPI output, Ecoline RotaCol, Bush mounting - Thread 3/8"x32 UNEF / 1/4" Ø shaft, 5V SPI output - 3 wire, 14 bit, without stop° 360 clockwise, zero point, medium torque, 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 by its 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 SPI VERSIONS 22P ERCB

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 output 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 interface. 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 0.5 mtr. To bridge larger

Direction of Rotation (CW / CCW)

The default 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. 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.

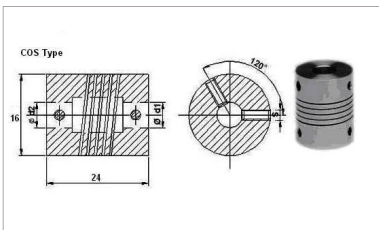
MECHANICAL OPTIONS FOR SPI VERSION 22P ERCB

Type / Series	Standard mechanical options	Customized mechanical options
22P ERCB	Low torque (LT), High torque (HT), Endstop at 90 °, 180 °, 270 °, Mu metal cap	Special shaft length ; Special endstop angle

ACCESSORIES - SPIRAL COUPLINGS

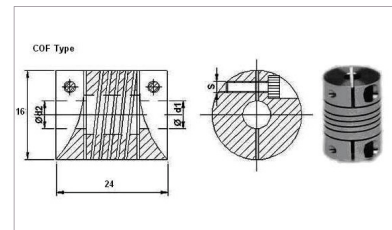
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either 1/4th inch or 1/8 inch shaft dia. These can be used to connect metric and non metric devices

COS Type



Set Screw Fitting
 6 mm (d1) - 1/4" (d2)
 6 mm (d1) - 1/8" (d2)

COF Type



Flange Clamping
 6 mm (d1) - 1/4" (d2)
 6 mm (d1) - 1/8" (d2)

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