

'Incremental' Output Precision Contactless Rotary Position Sensor

Flange Mounting

Economical - Incremental - output, 22 mm housing

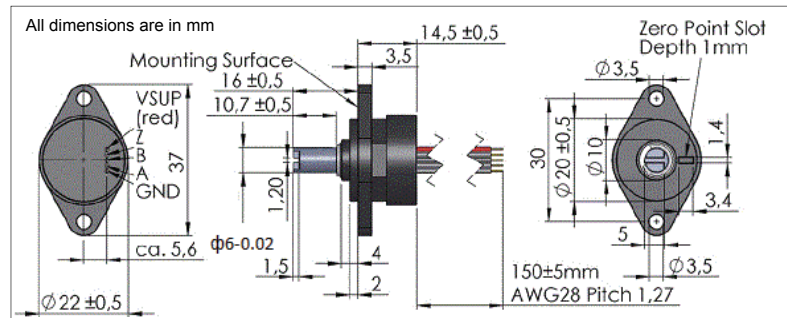
A - B - Z channels - Any pulse from 2 - 128, 256, 512, 1024 ppr programmable

Flange mounting

Shock and vibration proof

Alternative to optical encoder

1- Supply (Red); 2- Channel Z (Grey); 3- Channel B (Grey); 4- Channel A (Grey); 5- Ground (Grey)



ELECTRICAL CHARACTERISTICS

Elec. Pulses	Any pulse from 2 to 128, 256, 512, 1024 ppr	
Electrical speed (Max.)	1600 rpm	
Resolution	4096 step (12 bit)	
Signal type	Supply voltage	Output signal
S05TTL	5V +/- 10%	5V TTL
S05OC	5V +/- 10%	5V Open collector
S24OC	9-30V	24V Open collector
Supply current	< 30 mA	
Frequency response	500 KHz	

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Mechanical speed (Max.)	3000 rpm
Shaft diameter x length (FMS)	6 mm Ø X 16 mm
Rotational life	~20 million rotations
Operating temperature	- 40 ... +85 °C
Operating torque (Low.)	0.3 to 0.5 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 / halfsine (3X6 shocks)
Weight	18 gm
Interconnection	5 core flat cable 0.15 mtr long

MATERIAL

Bearing	Polymer bearing
Housing	Nylon 66 Glass Fibre reinforced
Shaft	Stainless steel

ORDERING INFORMATION

Refer to electrical and mechanical options on

Housing diameter	Incremental output	Ecoline	Flange (shaft 6 mm Ø)	Signal	No of Pulses	Direction of rotation	Programming options	Zero point	Special shaft length (default 16 mm FMS)	Special cable length (default 0.15 mtr long)
22	I	EPP	F1	S05TTL S05OC S24OC	xxxx	CW CCW	POx POZ POI	Axx	CVxx	
22	I	EPP	F1	Sxxxx	xxxx	CW / CCW	POx	Axx	CVxx	

Example with description - **22 I EPP F1 S05TTL 512 CW A18** - 22 mm housing, incremental output, Flange 6 mm shaft, 5V TTL, 512 pulses clockwise, special shaft length 18 mm FMS, 5 core fl at cable 0.15 mtr long

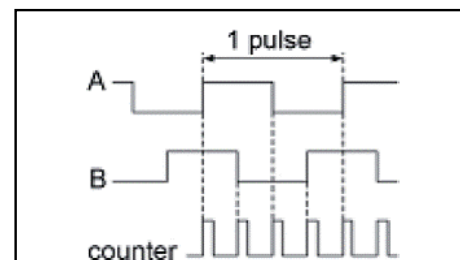
Series 22I EPPF



FUNCTION PRINCIPLE

A magnet rotates over the sensor IC with 4 Hall sensors for angular determination and converts the magnetic field into a measurable Hall voltage. When the magnet rotates around the longitudinal axis, sine and cosine voltages are generated to determine the angles. Two separate sine/digital converters provide A, B, Z incremental signals.

INCREMENTAL OUTPUT



There are 3 signals for incremental output :A, B and Z. Signals A and B are quadrature signals, shifted by 90° and signal Z is a reference mark. One revolution generates N pulses of signal A or B. The reference mark signal is produced once per revolution. The width of the Z pulse is 1/4 of quadrature signal period and is matched with A high and B high. Generally, the magnetic incremental encoders are directly comparable with the conventional optical incremental encoders. They provide additional features and can much easier be adjusted to customer requirements. Nevertheless optical and magnetic incremental encoders do not provide an absolute signal.

Default Version :

22 mm housing, flange mount, 360° Electrical & Mechanical angle CW, 1024 ppr, 5 core flat cable 0.15 mtr long

ELECTRICAL OPTIONS FOR INCREMENTAL VERSIONS 22I ERCF

EPP 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 EPP series is divided into three 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.

Rotary incremental magnetic encoders and sensors - EPP are angular position sensors with an integrated signal conditioning unit, which generates constant amplitude sine and cosine voltages which are used for angle calculation. The maximum resolution is 4096 angular measurements per revolution (0.1°). Like in the standard optical incremental encoders a rising and falling edge at channel A and channel B is available. Thus the rotational direction can be detected. The quadrature signal consist of 2 wave signal out of phase. The Z channel enables the counter to be reset to zero with the function of a non true power on absolute encoder. The programming of the position for the reference "Z" impulse in a relation to the marking on the shaft and housing can be factory set. Contrary to optical encoders, any pulse between 2 - 128 pulses per revolution can be programmed by software without disc change

Number of Pulses(XXXX) :

Standard configuration is 1024 ppr. As an option, every ppr between 2 to 128 ppr are programmable. Besides that 256 or 512 ppr can also be programmed (Price Adder).

Direction of Rotation (CW / CCW) :

In standard configuration direction of rotation is clockwise. With this option, it is possible to change direction from Clockwise (CW) to counter clockwise (CCW). (Price Adder)

Start Up Performance :

In the standard configuration, when the sensor is switched on, first the output A-B pulses are received only if the shaft rotates. After reaching the Z pulse it is used for resetting the counter (identical to optical encoders). In this option, when the electronic is switched on, the A and B output pulses are received automatically till the Z pulse is reached. Then the counter can be reset without rotating the shaft. From this point, the A, B and Z outputs are received corresponding to the shaft rotation.

Z Pulse :

A counter which is connected to the sensor is reset once per revolution by the Z - pulse. Within one rotation a simulation of non - true power on encoder is possible. In the basic type the counter is reset manually.

Zero Point Programming (POZ) :

Standard configuration is zero point without orientation. It is possible to position the Z Pulse in line with the marking on the shaft and the housing (Price Adder).

Inverted Signal (POI) :

The standard configuration is not inverted. With this option, the channels A and B can be inverted independent of each other (Price Adder).

MECHANICAL OPTIONS FOR INCREMENTAL VERSION 22I ERCF

Type / Series	Standard mechanical options	Customized mechanical options
22I ERCF	Special cable Length	Special shaft length

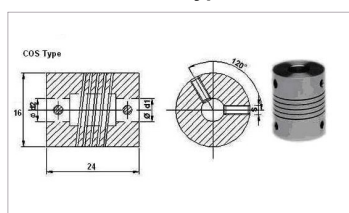
INTERCONNECTION

Standard Interconnections - 5 core flat cable 0.15 mtr long

ACCESSORIES - SPIRAL COUPLINGS

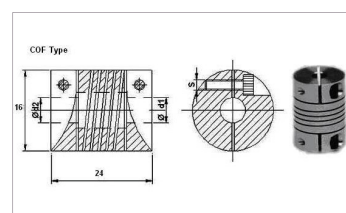
Whenever the shafts of the sensors are available only in metric (mm) or radial force is expected on the shaft, we recommend our very economical precision machined metal spiral couplings with set screws or clamp fixing. there are two dimensions in stock. One side for 6 mm dia shaft and other side either 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)

We are here for you. Addresses and Contacts.

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