PRECISION INCREMENTAL CONTACTLESS ROTARY POSITION SENSORS - BUSH MOUNTING

Series 25I PP B
Series 30I PP B

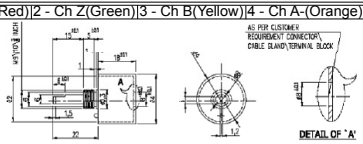
Ø25 mm & 30 mm plastic robust housing
Hall CMOS technology
A - B - Z channels- Any pulse from 2 - 128 programmable, 256, 512,1024 ppr
Shock and vibration proof
Long life design
Cable gland output connection available

with terminal block

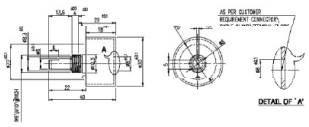
with cable gland

1 - Supply(Red)|2 - Ch Z(Green)|3 - Ch B(Yellow)|4 - Ch A-(Orange)|5 - Ground(Black)

For 25 mm



For 30 mm



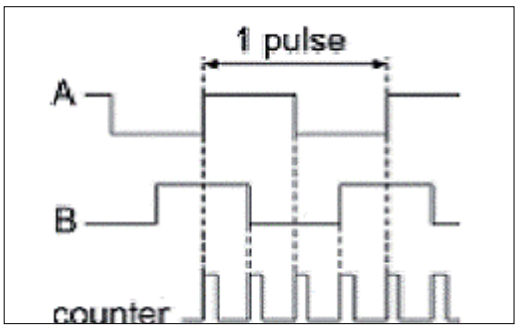
FUNCTION PRINCIPLE

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.

ELECTRICAL CHARACTERISTICS

Pulses	Any pulse from 2 to 128, 256, 512, 1024 ppr
Output signal	5V TTL, 5V / 24V Open collector
Resolution	4096 steps
Frequency response	10 KHz
Supply voltage	5V ± 10% / 9 - 30 VDC
Supply current	< 30 mA

INCREMENTAL INTERFACE



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. Neverthless optical and magnetic incremental encoders do not provide an absolute signal.

MECHANICAL CHARACTERISTICS

Mechanical angle	360°
Max rotating speed (max.)	800 rpm (brass) ; 3000 rpm (polymer)
Electrical speed (max.)	1600 rpm
Life: with brass sleeve bearings	~ 10 million rotations
Life: with polymer sleeve bearings	~ 15 million rotations
Operating temperature	- 40 ... +85 °C
Operating torque (approx.)	1.2 Ncm ± 50%
Output connection	Cable gland (with 1 meter cable)
Weight	31 gm (25A RS B) / 47 gm (30A RS B)

MATERIAL

Bearing type: basic type with stop	brass bearing with stainless steel shaft
Bearing type: option P	polymer sleeve bearing with SS shaft
Housing	Nylon 66 Glass fibre reinforced
Shaft	stainless steel
Cable	5 core round cable

OPTIONS AND ORDERING REFERENCES

Refer to electrical & mechanical option on page 2

25 & 30 mm Housing diameter	Incremental output	Pewatron Angular Sensor	Bush mounting Thread M10 / Shaft Ø 6mm Thread M9 / Shaft Ø 6mm Thread 3/8" / Shaft Ø 6.35mm	Signal	5V TTL 5V Open collector 24V Open collector	No. of pulse Any pulse from 2 - 128, 256, 512, 1024 ppr	Clockwise (CW) Counter clockwise (CCW)	Programming options	Zero point Inverted signal	Low torque High torque	Special shaft length (std 22 mm FMS)	Special cable length (standard 1 m cable)	Output connections	Cable gland (std) Miniature connector Terminal block (A- Axial & R - Radial)
25/30	I	PP	B1 B2 B3	S	05TTL 05OC 24OC	1024	CW CCW	POx	POZ POI	LT HT	Axx	CVxx	OCx	OCG OCM OCT
xx	**I**	**PP**	**Bx**	**Sxxxx**		**xxxx**	**CW / CCW**	**POx**		**xT**	**Axx**	**CVxx**	**OCx**	

example with description-**25I PP B2 S05TTL 256 CW POI**-25mm housing,incremental output, PP Series bush mounting-Thread M9/Shaft 6mm,5V TTL,256 clockwise,inverted signal

Standard Version : 360° CW Electrical & Mechanical angle, 1024 ppr, OCG - Cable gland,MT - Medium torque

ELECTRICAL OPTIONS FOR INCREMENTAL VERSIONS 25/30I PP B

The Sensors 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 optoelectronical incremental and absolute encoders are replaced. The 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 - PP Series 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 & Direction (xxxx CW / CCW)

As a unique feature any number of pulses from 2 - 128 pulses per revolution (ppr) can be programmed in a 3 channel confi guration. Above 128 ppr the following resolutions are possible as std option: 256, 512, 1024 ppr. The default direction of rotation is clockwise (CW). With this option it is also possible to change direction from clockwise(CW) to counter clockwise (CCW).

Start Up Performance

In the basic default version, 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)

It is possible to position the Z Pulse in line with the marking on the shaft and the bushing. Also any offset to this marking is possible.

Inverted Signal (POI)

The channels A and B can be inverted or not inverted independent of each other. The basic type is not inverted.

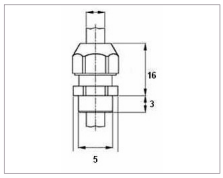
MECHANICAL OPTIONS FOR INCREMENTAL VERSION 25/30I PP B

Type / Series	Standard mechanical options	Customized mechanical options
25/30I PP B	Low torque (LT) ; High torque (HT)	Special shaft length

SPEEDCONNECT OUTPUT CONNECTIONS FOR INCREMENTAL VERSION 25/30I PP B

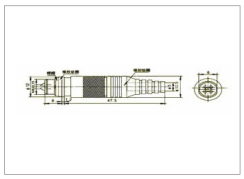
Cable gland (OCG)

3,5,6 core cable of 1 m length according to interface



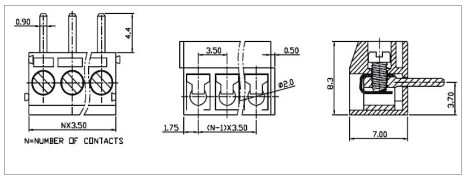
Miniature connector (OCM)

3,5,6 pin in integrated socket with plug according to interface



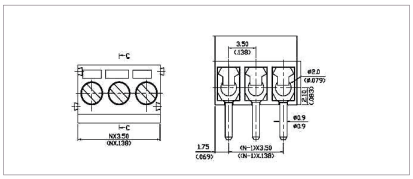
Terminal block - Axial (OCTA)
Wires leaving axial to shaft axis

3,5,6 sockets according to interface



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

3,5,6 sockets according to interface



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