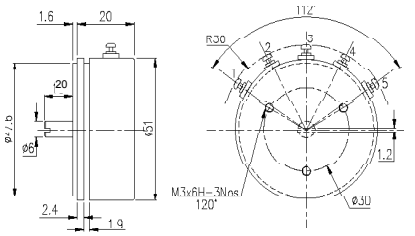
PRECISION INCREMENTAL SERVOMOUNT CONTACTLESS LONG LIFE ROTARY POSITION SENSOR

Series 50I PBSL

Servomount case - 2 Ball bearings
Hall effect magnetic
A - B - Z channels- Any pulse from 2 - 128 programmable, 256, 512,1024 ppr
Precision robust aluminium housing
Synchro size 20, shock & vibration proof
Measurement range 0° - 360°



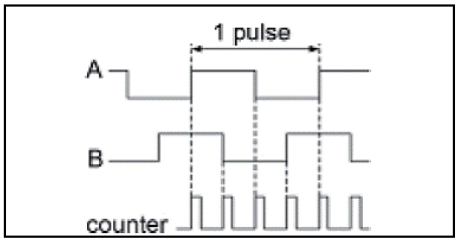
1 - Supply(green)|2 - Ch Z(Grey)|3 - Ch B(Grey)|4 - Ch A(Grey)|5 - Ground(Grey)

All Dimensions are in 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.

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.

ELECTRICAL CHARACTERISTICS

Electrical angle	0 - 360°
Pulses	Any pulse from 2 to 128, 256, 512, 1024 ppr
Resolution	4096 steps (0.1°)
Supply voltage	5V ± 10% / 9 - 30 VDC
Outpout signal	5V TTL, 5V / 24V Open collector
Supply current	< 30 mA
Frequency response	10 KHz

MECHANICAL CHARACTERISTICS

Mechanical angle	360° (continuous)
Starting torque (approx.)	0.4 Ncm
Protection	IP 40
Operating temperature	- 40 to +85° C
Operating life (approx.)	40 million rotations
Mechanical speed (max.)	9000 rpm
Electrical speed (max.)	1600 rpm
Weight	77 gm

MATERIAL

Housing	anodized aluminium
Shaft	stainless steel
Terminals	5 pins brass gold plated
Bearings	2 precision ball bearing

OPTIONS AND ORDERING REFERENCES

Refer to electrical and mechanical options on page 2

Housing diameter	Incremental output	Pewatron Angular Sensor	Servomount Goldline	Signal: 5V TTL / 5V Open collector / 24V Open collector	Pulses and electrical rotational direction: Pulses and Clockwise (CW) / Pulses and Counter clockwise (CCW)	Programming options: Zero point / Inverted signal	Output connections	5 Pins (standard) / 5 Core Flat cable / Miniature connector / Cable gland with 1m round cable / Terminal block (A- Axial & R - Radial)
50	I	PB	SL	S 5TTL / S 05OC / S 24OC	CW / CCW	POx / POZ / POI	OCx	OCP / OCF / OCM / OCG / OCT
50	**I**	**PB**	**SL**	**Sxxxx**	**xxxx CW / CCW**	**POx**	**OCx**	

example with description - **50I PBSL S05OC 100 CCW POZ OCT -** 50mm diameter, incremental output, PB Series, Servomount Goldline, Signal - 5V open collector, 100 pulse and counter clockwise, Zero point, Terminal block

Standard Version : 360° CW Electrical & Mechanical angle, 1024 ppr, OCP - 5 pins

ELECTRICAL OPTIONS FOR INCREMENTAL VERSIONS 50I PBSL

PB Series 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 PB 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 - PB 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 (xxx CW / CCW)

As a unique feature any number of pulses from 2 - 128 pulses per revolution (ppr) can be programmed in a 3 channel configuration. 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.

Push Pull Function

In an open collector mode the driver current is limited by pull up resistor. In push - pull mode the driver current goes up to 300 mA. Longer distances and faster switching is possible.

MECHANICAL OPTIONS FOR INCREMENTAL VERSION 50I PBSL

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

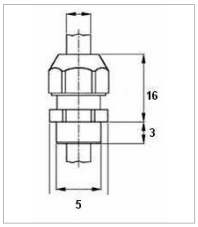
INTERCONNECTIONS

Standard Interconnections - 5 Pins

Other Interconnection options

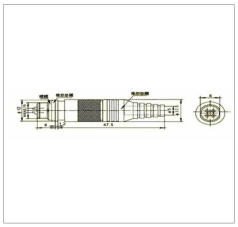
Cable gland (OCG)

5, core cable of 1 m length



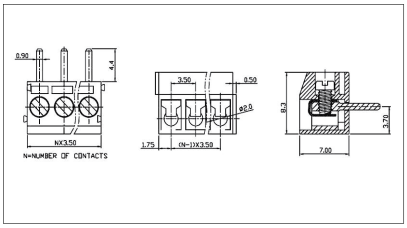
Miniature connector (OCM)

5 pin in integrated socket with plug



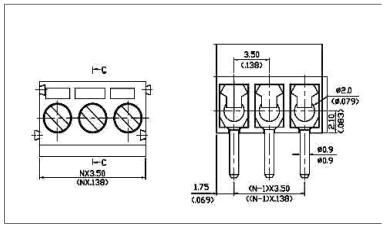
Terminal block - Axial (OCTA)
Wires leaving axial to shaft axis

5 sockets



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

5 sockets



We are here for you. Addresses and Contacts.

Headquarter Switzerland:

Angst+Pfister Sensors and Power AG
Thurgauerstrasse 66
CH-8050 Zurich

Phone +41 44 877 35 00
sensorsandpower@angst-pfister.com

Office Germany:

Angst+Pfister Sensors and Power Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim

Phone +49 89 374 288 87 00
sensorsandpower.de@angst-pfister.com

Office North America:

Angst+Pfister North America Inc.
10391 Brecksville Rd.
US-Brecksville, OH 44141

Phone +1 440 375-5212
info.apus@angst-pfister.com

Scan here and get an overview of personal contacts!

https://sensorsandpower.angst-pfister.com/en/