

Series 36P PBSL



FUNCTION PRINCIPLE

SERIAL PERIPHERAL INTERFACE

Timing diagram showing the relationship between /ss, SCLK, MOSI, and MISO signals. The /ss signal is active low. The SCLK signal is a clock. The MOSI signal is the master out/slave in data bus. The MISO signal is the master in/slave out data bus. The diagram illustrates a data transfer sequence where the /ss signal is asserted at the Latch point, and data is transferred over SCLK. The MOSI signal shows data being sent (F, F, F, F, F, F, F, F). The MISO signal shows data being received (F, F, D, A, T, A, F, F) and then an acknowledgment (D).

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 (Master Out --> Slave In), MISO (Master In <-- Slave Out), 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

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.)	800 rpm
Weight	60 gm

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

Refer to electrical and mechanical options on page 2

OPTIONS AND ORDERING REFERENCES								Refer to electrical and mechanical options on page 2			
Housing diameter	SPI output	Pewatron Angular Sensor	Servomount Goldline	Signal	5V	2 Channel redundant output	Rotational direction	Clockwise (CW) Counter clockwise (CCW)	14 bit output	Programming options Zero point	Output connections 5 Pins (standard) 5 Core Flat cable Miniature connector Cable gland with 1m round cable Terminal block (A-Axial & R - Radial)
36	P	PB	SL	05 SPI		2C		CW CCW	S 14	POx POZ	OCx OCF OCF OCM OCG OCT
36	P	PB	SL	05 SPI		2C	CW / CCW	S 14	POx	OCx	

example with description - **36P PBSL 05SPI CCW POZ S14 2C OCF** - 36mm diameter, SPI output, PB Series, Servomount Goldline, Signal - 5V, counter clockwise, zero point, 14 bit output, 2 channel redundant output, 5 Core Flat cable

Standard Version : 360° CW Electrical & Mechanical angle, OCF - 5 pins

ELECTRICAL OPTIONS FOR SPI VERSION 36P 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 optoelectronic incremental and absolute encoders are replaced. The PB 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. Beside that it is also possible to position the zero point at any position within the mechanical angle. 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 36P PBSL

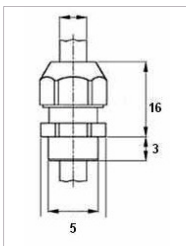
Type / Series	Standard mechanical options	Customized mechanical options
36P PBSL	Cable gland (OCG) ; Terminal Block (OCTA / OCTR) ; Miniature connector (OCM)	Special shaft length ; Special cable

INTERCONNECTIONS

Standard Interconnections - 5 Pins

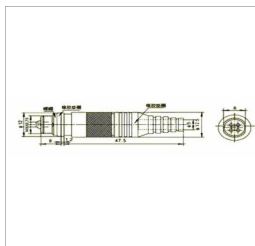
Cable gland (OCG)

5, core cable of 1 m length



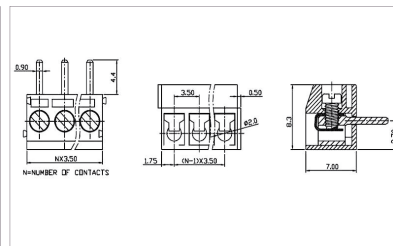
Miniature connector (OCM)

5 pin in integrated socket with plug



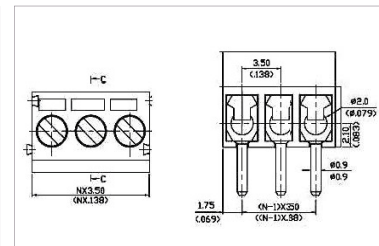
Terminal block - Axial (OCTA) Wires leaving axial to shaft axis

5 sockets



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

5 sockets



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