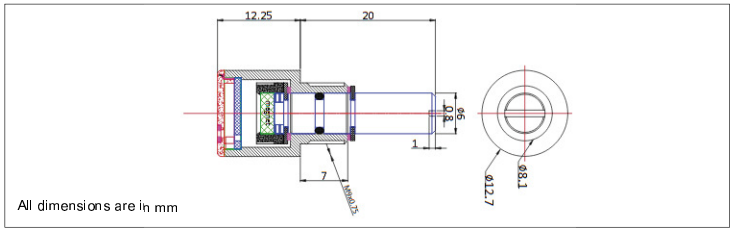
'SENT' Interface Precision Contactless Rotary Position Sensors

Bush Mounting - Sleeve bearing

12T MMPB2

12 mm Ø metal housing
Hall CMOS technology, low cost
Economical - I2C digital - Interface
Bush mounting - Sleeve bearing - 6 mm shaft diameter

1 - Supply (Red) ; 2 - Output (Grey) ; 3 - Ground (Grey)



ELECTRICAL CHARACTERISTICS

Electrical angle	0 to 360° , any angle from 0 - 20... 0 - 360 programmable in steps of 1 °	
Electrical speed (max)	160 rpm	
Resolution	4096 steps (12 bit)	
Independent linearity tolerance	± 0.5%	
Signal type	Supply voltage	Output signal
SSENT	5V ±10%	SENT
Supply current (mA)	< 16 mA	
Update rate	1 ms	
Frequency response	200 Hz default (500 Hz , 1KHz , 2KHz optional)	

MECHANICAL CHARACTERISTICS

Mechanical angle	0 - 360°(continuous)
Shaft diameter and length (FMS)	6 mm Ø X 20mm
Bushing	M9 X 0.75
Mechanical speed (Max.)	800 rpm
Rotational life	~ 10 million rotations
Operating torque (approx.)	0.1 to 0.3 Ncm
Operating temperature range	- 40 to +85° C
Weight	10 gm
Interconection	3 core flat cable 0.15 mtr long

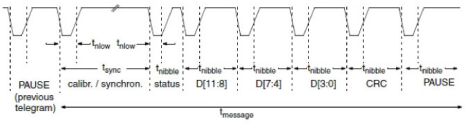
MATERIAL

Housing	Aluminium anodized
Shaft	Stainless Steel
Bearing	Sleeve bearing- teflon

FUNCTION PRINCIPLE

The determination of angular position and signal generation is realised by an intelligent CMOS Hall sensor. A diametrical polarised magnet induces its magnetic field into the sensor. It rotates and provides a conditioned signal to the integrated electronic.

SENT INTERFACE



All timing values in a SENT protocol are referenced to the clock tick time (ttick). After reset the output is recessive high. The transmission starts with a low pulse of the synchronization phase. A synchronization/calibration pulse always starts a message frame and provides a method for measuring the tick time of the SENT output. The message frame usually ends with a CRC/checksum nibble and optional pause pulse. Data is transmitted in units of 4 bits (1 nibble) for which the interval between two falling edges (single edge) of the modulated signal with a constant amplitude voltage is evaluated. In order to synchronize the SENT messages to the measurement sampling rate an additional pause period is added, which is transmitted after the checksum nibble.With supply voltages of 5V±10% SENT output signal can be provided. Besides this a large variety of electrical options such as Output signal level programming, Zero point, Center point programming are provided.

Default Version :
12 mm housing, 6 mm shaft, bush mount, 360° Electrical & Mechanical angle CW, Output signal level 0-100%, frequency 200 Hz, 3 core flat cable 0.15 mtr long

ORDERING INFORMATION

Refer to electrical and mechanical options on page 2

Housing diameter	SENT interface	Miniline (Bush Thread M9X0.75 & Shaft 6 mm Ø)	Miniline	Bush mounting M9X0.75	Signal	SENT	Electrical angle	any angle from 0-20 to 0 - 360 programmable in steps of 1° (default 360°)	Direction of rotation	Clockwise (CW) - (default) Counter clockwise (CCW)	Programming options	Delta 1/2 - (default) Low level High level Variable level	Programming options	Output signal level Zero point Center point	Special cable length (default 0.15 m long)	Output connection	3 core flat cable 0.15 mtr long - (default)
12	T	M	MP	B2		SSENT		xxx		CW CCW	PEx	PE1 PE2 PE3 PE4	POx	POL POZ POC	CVxx		OCF
12	**T**	**M**	**MP**	**B2**	**SSENT**		**xxx**		**CW / CCW**		**PEx**		**POx**		**CVxx**		**OCF**

Example with description **- 12T MMPB2 SSENT360CW OCF -** 2 mm diameter, SENT interface, Miniline, RotaCol bush mount, (Bush Thread M9X0.75 & Shaft 6 mm Ø), SENT interface, 360° clockwise, 3 core flat cable 0.15 mtr long

Experts on Design-In
Angst+Pfister Sensors and Power

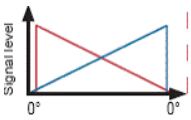
ELECTRICAL OPTIONS FOR SENT VERSION 12T MMPB2

Electrical options for Effective electrical angle :

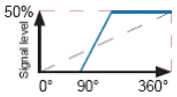
Electrical angle (xxx) : Standard configuration is 360°. As an option, any angle from 0-20° to 0-359° in steps of 1° can be programmed. (Price adder).

Output Signal level Programming (POL):
Standard configuration is 0-100%. Output signal can be programmed at any defined lower limit or upper limit in terms of percentage of output (Price Adder).

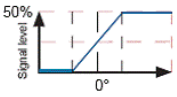
Direction of Rotation (CW/CCW) :
CW(Clockwise) When shaft is viewed from top, and rotated in clockwise direction, output increases from minimum to maximum value(standard configuration).
CCW(Counter clockwise) when shaft is viewed from top,and rotated in counter clockwise direction,output increases from minimum to maximum value(Price adder).



Zero point Programming (POZ) :
Standard configuration is zero point without orientation. At POZ, when we do zero point programming rising ramp will start from marking on encoder housing or from the endstop CCW. Zero point can also be programmed at any defined offset from marking on the housing (Price Adder).

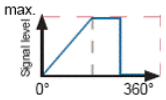


Center point Programming (POC) :
Effective electrical angle is aligned with the mechanical zero point in such a way that equal effective angles in both rotating directions are achieved. Center point can also be programmed at any offset (Price Adder).

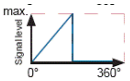


Electrical options for Non - Effective electrical angle (Price Adder) : (If electrical angle is < 360°)

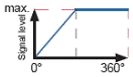
Delta 1/2 (PE1):
If the electrical effective angle is programmed smaller than 360°, the remaining non-effective electrical angle is divided in two equal parts : high level & low level - Delta 1/2



Low level (PE2) :
If the electrical effective angle is programmed smaller than 360°, after reaching the maximum, the signal level falls to low level.



High level (PE3) :
If the elecrical angle is programmed smaller than 360°, the signal level remains high after reaching the full level.



Variable level (PE4) :
If the electrical angle is programmed smaller than 360°, remaining non-effective electrical angle can be divided into high and low level in any ratio according to customer request.

MECHANICAL OPTIONS FOR SENT VERSION 12T MMPB2

Type / Series	Customized mechanical options
12T MMPB2	Special cable length

INTERCONNECTIONS

Standard Interconnections - 3 core flat cable 0.15 mtr long

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/