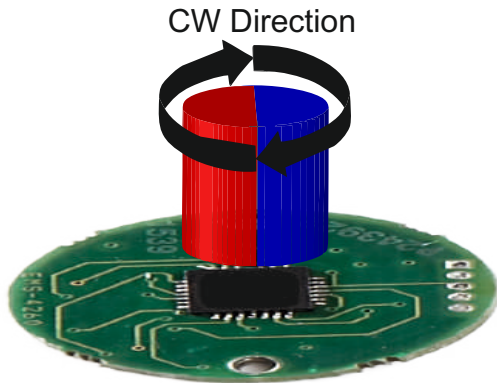


WSB14R - Magnetic encoder module

Based on Dipole Magnet and Hall Sensors

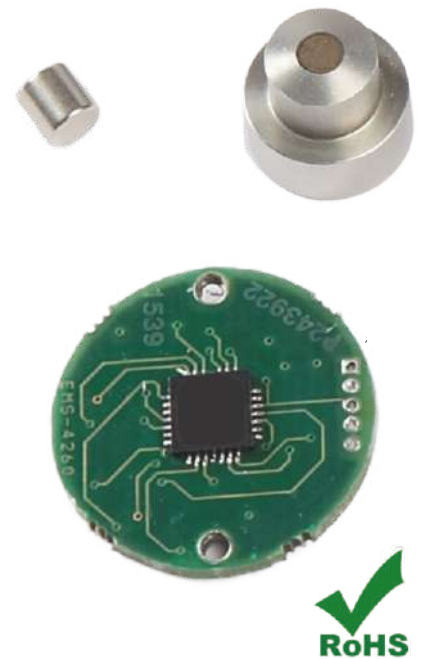


WSB14R magnetic rotary encoder module has a precision sensor having an integrated Hall element for scanning a permanent Dipole magnet. The Sensor itself generates a constant amplitude Sine and Cosine voltages that is used for angle calculations. These Sine and Cosine signals are further interpolated to get the Incremental or Absolute signals with resolutions up to 14 bits per rotation.

WSB14R module is a 14mmX19mm rectangular PCB assembly.

Salient Features:

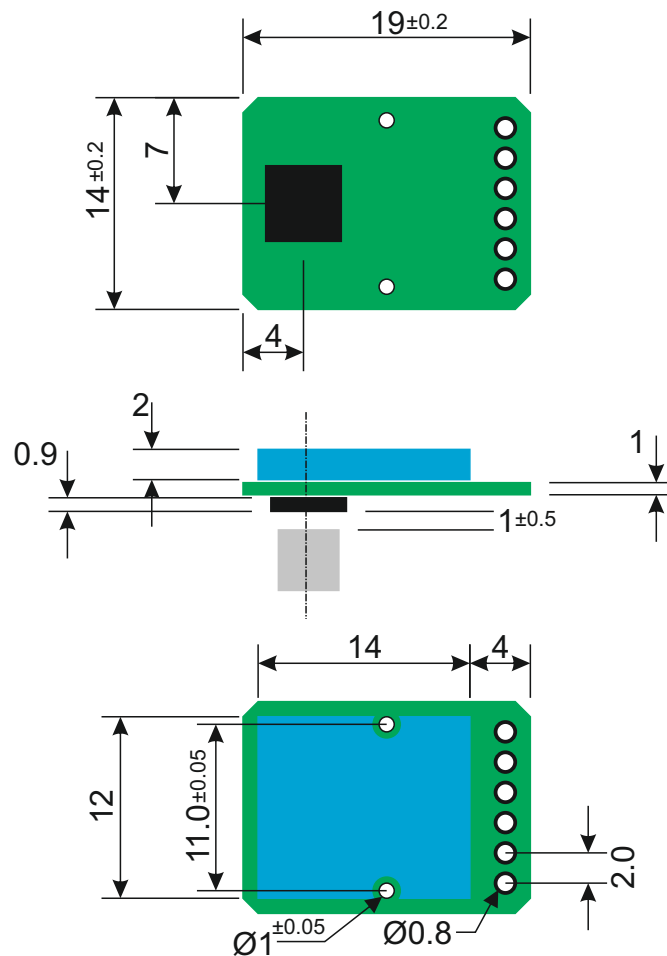
- 👉 14mm X 19mm rectangle PCB assembly module
- 👉 Operates on 5V power supply
- 👉 Variety of outputs supported like Analog Sin-Cos output, Incremental RS422, Absolute SSI and BiSS-C protocol
- 👉 Supports up to 14 bits (16384 positions) per rotation Absolute and Incremental output
- 👉 Accuracy +/- 0.3 deg
- 👉 High Speed operation up to 20000 rpm at 12bit resolution
- 👉 360PPR (1440CPR) also available to give angular resolutions easier for mathematical calculations
- 👉 Suitable for applications like motor control, Medical instrumentation, paper and textile industry, Industrial automation and many more



Available models:

- 👉 **WSB14RIR** - Incremental RS422 A, B and Z output with up to 16384 counts per rotation (CPR)
- 👉 **WSB14RSB** - Absolute output on Synchronous Serial interface (SSI) with Binary data up to 13 Bits per rotation
- 👉 **WSB14RSG** - Absolute output on Synchronous Serial interface (SSI) with Grey coded data up to 13 Bits per rotation
- 👉 **WSB14RBC** - Absolute output on BiSS-C data up to 14 Bits per rotation

Installation drawings:



All dimensions are in mm

Note: Magnet center axis and PCB center should be within ± 0.1 mm to get the specified accuracy results

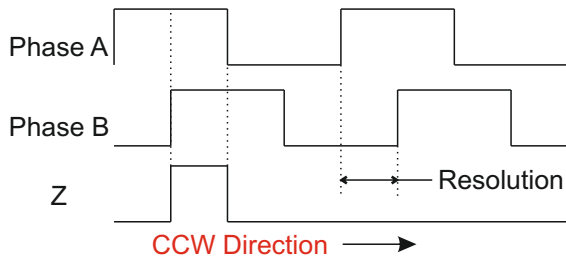
WSB20 Specifications:

	WSB14RIR	WSB14RSB / SG	WSB14RBC
Power Supply (V_{dd})		+5V DC ($\pm 5\%$)	
Current consumption	50mA maximum	90mA maximum	
Output	Incremental RS422	SSI RS422	Biss-C RS422
Maximum RPM		2500 to 120000 RPM	
Operating Temperature		-40°C to $+125^{\circ}\text{C}$	
Storage Temperature		-40°C to $+125^{\circ}\text{C}$	
Accuracy		$\pm 0.3^{\circ}$	
Clock Frequency	Not Applicable	4MHz maximum	10MHz maximum
Output data format	Not Applicable	SB - Binary SG - Grey coded	BiSS-C
SSI Data time out	Not Applicable	16 μS	12.5 μS to 40 μS
Output driving current		20mA maximum	

Output waveforms:

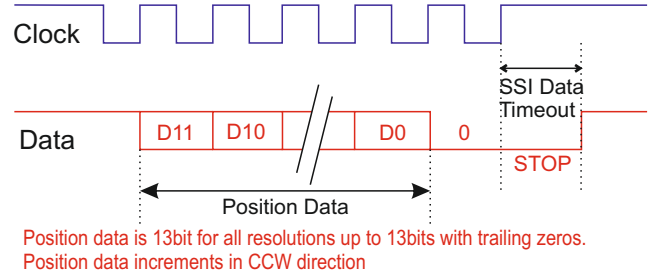
WSB20IR

(Differential signals are not shown)

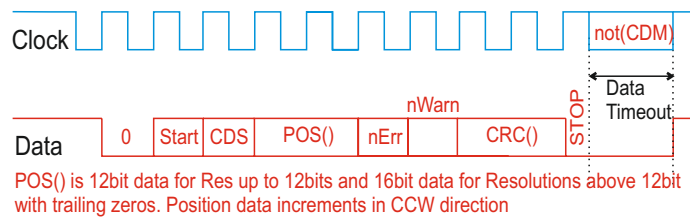


WSB20SB / SG

(Differential signals are not shown)



WSB20BC



Output Resolutions:

WSB20IR

CPR	Hysteresis	Max. RPM
4 to 256*	0.7°	120000
260 to 512*	0.35°	60000
516 to 4096*	0.17°	30000
8192	0.17°	5000
16384	0.17°	2500

* - In increments of 4. Eg 4, 8, 12, till 256 etc

Note: Pulse per Rotation (PPR) can be calculated as counts per rotation (CPR) ÷ 4

WSB20SB/SG/BC

No of Bits	Hysteresis
8	0.7°
9	0.35°
10 to 12	0.17°
13	0.17°
14*	0.17°

* - Available only in BC model

