

# Single-Turn Absolute Rotary Encoder

Housing Dia.:38,50,58mm; Solid Shaft Dia.:6,8,10mm;

Interface: **BISS**; Resolution: Single turn max.1024ppr/max.2048ppr;

**GSA-B Series**



- ▶ Housing Diameter:38,50,58mm;
- ▶ Solid/hollow Shaft Diameter:6,8,10mm;
- ▶ Interface: BISS;
- ▶ Resolution: Single turn max.1024ppr/max.2048ppr;
- ▶ Supply Voltage:5v,8-29v;
- ▶ Output Code: Binary, Gray, ;
- ▶ Widely used in various fields of automatic control and measurement system,such as machinery manufacturing, shipping, textile, printing, aviation, military industry Testing machine, elevator, etc.
- ▶ Vibration-resistant, corrosion-resistant, pollution-resistant;



## Product characteristics

Housing Dia.:	38,50,58mm
Solid Shaft Dia.:	6,8,10mm

## Electrical Data

Resolution:	Single turn max.1024ppr/max.2048ppr			
Interface:	BISS/NPN/PNP open collector;			
Output Code:	Binary, Gray, Gray Excess, BCD			
Supply Voltage:	8-29V			
Max. Frequency Response	30Khz			
Rotary Direction	<b>ccw</b>		<b>cw</b>	
Output	Output Format	NPN Open Collector		
	Output Logic	Positive Logic		
	Remaining Voltage	Io=16mA	≤0.4v	PNP Open Collector
		Io=32mA	≤1.5v	
Current	32mA Max		Negative Logic	

## Mechanical Data

Start Torque	0.01N•M
Max. Shaft Loading	Axial: 5-30N, Radial:10-20N;
Max. Rotary Speed	3000rpm
Weight	160-200g

## Environment Data

Working Temp.	-30~80℃
Storage Temp.	-40~80℃
Protection Grade	IP54

## Connection Leading(1):

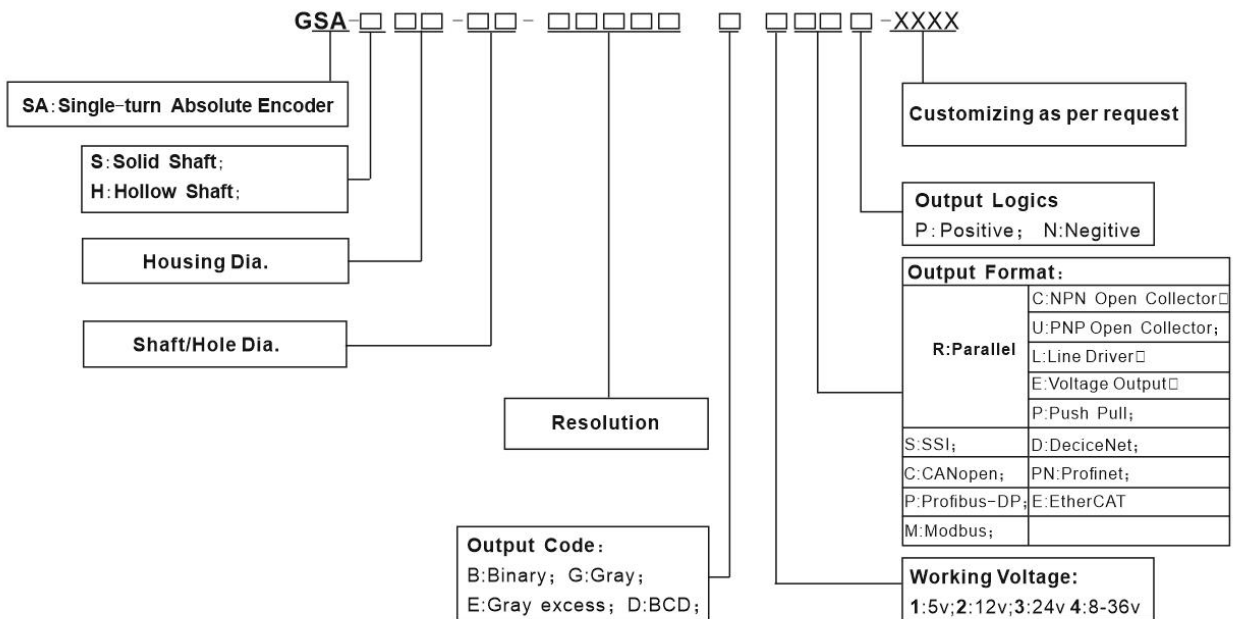
Pin	Color	Resolution					
		1024	512	256/180	128/90	64	32
1	Blue	0V	0V				
2	Brown	8V-29V	8V-29V				
3	Black	BIT1(2 <sup>0</sup> )	N/A				
4	Red	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A			
5	Orange	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A		
6	Yellow	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A	
7	Green	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A
8	Purple	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )
9	Gray	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )

10	White	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )
11	Black/White	BIT9(2 <sup>8</sup> )	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )
12	Red/White	BIT10(2 <sup>9</sup> )	BIT9(2 <sup>8</sup> )	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )
13	Blue/White	Zero Reset					
Shielding Line		GND					

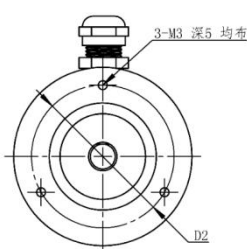
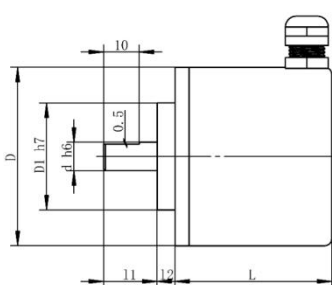
Pin	Color	Resolution						
		2048	1024/720	512/360	256/180	128	64	
1	Blue	0V	0V					
2	Brown	8V-29V	8V-29V					
3	Black	BIT1(2 <sup>0</sup> )	BIT1(2 <sup>0</sup> )	N/A				
4	Red	BIT2(2 <sup>1</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A			
5	Orange	BIT3(2 <sup>2</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A		
6	Yellow	BIT4(2 <sup>3</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A	
7	Green	BIT5(2 <sup>4</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )	N/A
8	Purple	BIT6(2 <sup>5</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )	BIT1(2 <sup>0</sup> )
9	Gray	BIT7(2 <sup>6</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )	BIT2(2 <sup>1</sup> )
10	White	BIT8(2 <sup>7</sup> )	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )	BIT3(2 <sup>2</sup> )
11	Black/White	BIT9(2 <sup>8</sup> )	BIT9(2 <sup>8</sup> )	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )	BIT4(2 <sup>3</sup> )
12	Red/White	BIT10(2 <sup>9</sup> )	BIT10(2 <sup>9</sup> )	BIT9(2 <sup>8</sup> )	BIT8(2 <sup>7</sup> )	BIT7(2 <sup>6</sup> )	BIT6(2 <sup>5</sup> )	BIT5(2 <sup>4</sup> )
13	Orange/White	BIT11(2 <sup>11</sup> )	N/A					
Shielding Line		GND						

## Ordering Code

### Single Turn Absolute Encoder



## Dimensions



D	38	50	58
d	6	8	10
D1	20	30	36
D2	30	40	48
L	35	35	44
11	15	15	20
12	5	5	10

**Note:**

- ▶ Adopt elastic soft connection shall be applied between encoder shaft and output shaft of user end to avoid damage of encoder shaft system due to serial movement and run out of user shaft.
- ▶ Please pay attention to the allowable axle load during installation.
- ▶ Make Sure that the difference Between Axial Degree of encoder shaft and user output shaft shall be no more than 0.20mm, and the deviation angle with axis shall be less than 1.5 °.
- ▶ Try to avoid knocking and falling collision during installation;
- ▶ Do not connect the power line and the ground wire in reverse.
- ▶ The GND wire shall be as thick as possible, generally larger than  $\phi 3$ .
- ▶ Output lines of encoder shall not be overlapped with each other to avoid damaging output circuit.
- ▶ Signal line of encoder shall not be connected to DC power supply or AC current to avoid damaging output circuit.
- ▶ The motor and other equipment connected to the encoder shall be well grounded without static electricity.
- ▶ Shielded cable shall be used for wiring.
- ▶ Before starting the machine, carefully check whether the wiring is correct.
- ▶ During long-distance transmission, the signal attenuation factor shall be considered, and the output mode with low output impedance and strong anti-interference ability shall be selected.
- ▶ Avoid using in strong electromagnetic wave environment.