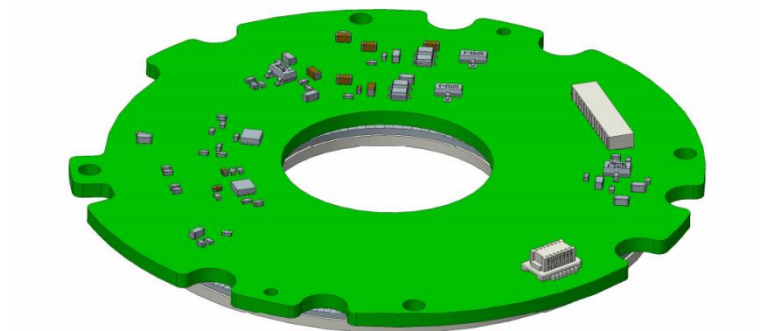


Magnetic rotary absolute position encoder

Product series: EAS-057

Product part number: EAS-057-G

Version: Ver1.0.0



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1. Description

EAS series product is an absolute linear position detection magnetic encoder. The sensor can be used in a movement control system to detect the position, speed of the system.

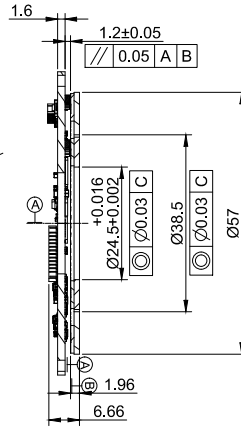
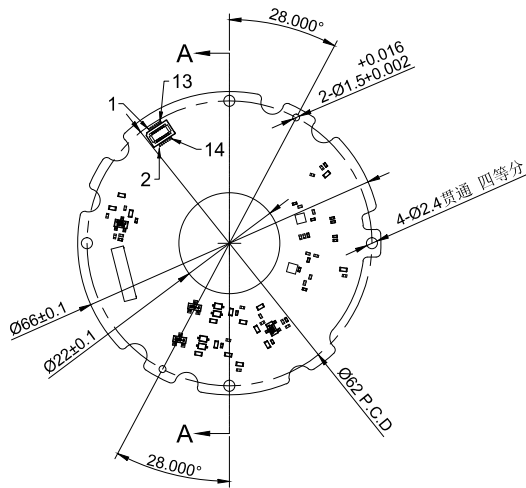
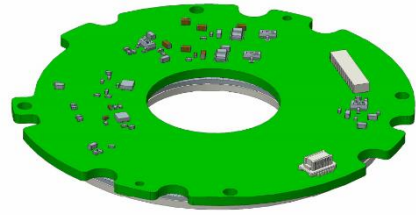
The sensor uses non-contact detection method based on TMR magnetic sensing technology. The magnetic scale has two magnetic tracks (incremental and absolute tracks).

The sensor has build-in signal processing circuit, and a digital output of SPI format.

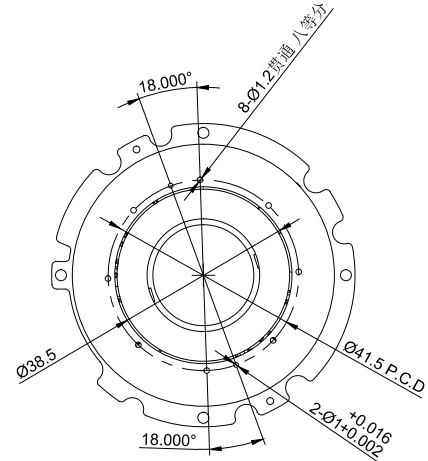
EAS series product has the following features:

- True absolute value system
- Absolute position dual track system
- Customized sensor chips
- The system is self-calibrating
- Resolution up to 24 bits
- The repeatability is 0.008°
- Absolute positioning accuracy 0.04°
- SPI interface

2. EAS-057-G Dimensions



截面 A-A



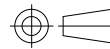
Terminals:

1	SPI_MOSI_1	8	SPI_CS_2
2	SPI_MOSI_2	9	VCC_GND
3	SPI_MISO_1	10	VCC_GND1
4	SPI_MISO_2	11	BAT1+
5	SPI_CLK_1	12	BAT2+
6	SPI_CLK_2	13	VCC
7	SPI_CS_1	14	VCC1

Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

Unit :mm



3. Electrical characteristic

3.1 Electrical connection

Lead	NAME
1	SPI_MOSI_1
2	SPI_MOSI_2
3	SPI_MISO_1
4	SPI_MISO_2
5	SPI_CLK_1
6	SPI_CLK_2
7	SPI_CS_1
8	SPI_CS_2
9	GND
10	GND1
11	NC
12	NC
13	VCC
14	VCC1

3.2 General parameter

Operating and storage temperature	-40°C to +105°C (Note: The operating temperature of the diode on the encoder is -40°C to +85°C)
Humidity	70%Rh
External magnetic field (thickness direction)	±100 mT
Shock (dependent on installation)	100 g
Vibration (dependent on installation)	80 g

3.3 Environmental parameter

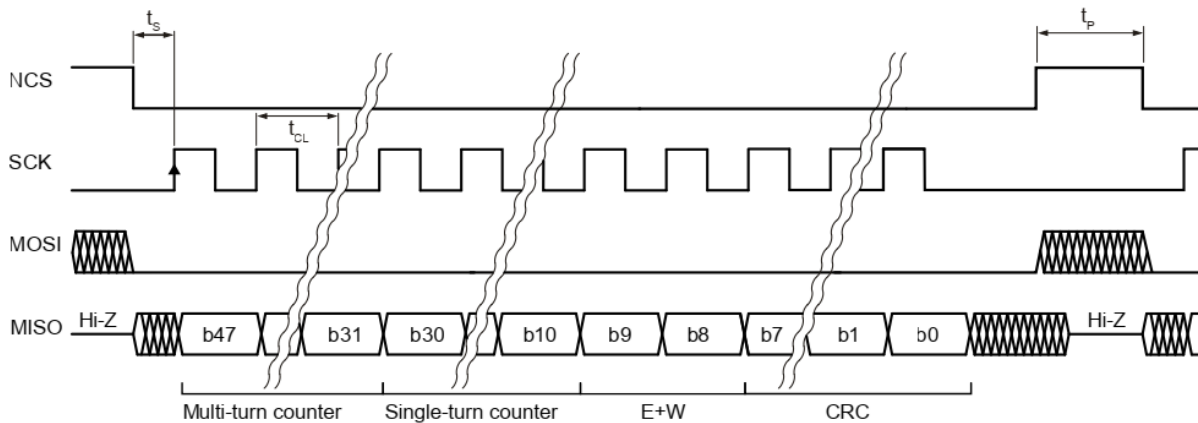
Supply voltage	4.75V~5.25V
Current	100 mA~150 mA
Connector	14-pin
Start-up time	100 ms
ESD (HBM)	HBM, Class 2, ±2 kV

3.4 System parameter

Parameter	Unit	Min	Typ	Max	Comment
Resolution	bit		24		
Maximum speed	RPM		10000		
Repeatability	°		±0.008		
Absolute position error	°		±0.04		
Input bandwidth	kHz			18	
Noise	°		±0.0005		

4. SPI protocol interface

SPI timing diagram



控制器通过设置 NCS 信号为低开启通信。同时，编码器的位置被锁定。需要 t_s 的延迟，以允许编码器准备数据，然后将数据转移到时钟信号 SCK 上升沿的 MISO 输出。

传输编码器位置和一般状态(活动低)数据，然后是整个数据包的 CRC(倒置)。

通讯参数

参数	Symbol	Min	Max
时钟周期	t_{CL}	250 ns	
时钟频率	f_{CL}		4 MHz
时间在 NCS 低到第一个 SCK 上升边缘后	t_s	12 us	
暂停时间	t_p	5 us	

编码器位置数据结构

b47 : b32	NC
b31 : b10	编码器位置+零填充位-左对齐, MSB 优先
b9	错误-如果低, 位置数据无效
b8	警告-如果低, 位置数据是有效的, 但一些操作条件接近限制
b7 : b0	反转 CRC, 0x97 多项式

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