

SEINFLEX

Intelligence Module on Seinflex Products

Product Catalog

- Magnetic Encoder
- Optical Encoder



www.seinflex.com

Company Introduction

SEINFLEX Co., Ltd. is a global magnet company that leads the world magnet market with flexible magnet application technology for any situation in the era of the 4th industrial revolution.

About the Company

Starting as 'KSM' in 1998, the company was renamed the current name, SEINFLEX Co., Ltd. in 2006. It is leading the Korean magnet market through the essential magnet application technology in the era of the 4th industrial revolution.

In 1998 when no one dared to enter the domestic magnet raw material market, SEINFLEX challenged itself into the rare earth material magnet business. It expanded into RF-based business in 2004, isolator circulator in 2008, and linear motor in 2004. The company localized the precise sensor encoder, the core part of robot joint, for the first time in Korea in 2007, and developed VCM jointly with a leading overseas company in 2018, successfully localizing the core national technology. In 2019, SEINFLEX has been producing the SMD-type isolator developed by the company, which is used for 5G telecommunication base stations.

SEINFLEX is also expanding its business all around the world through strategic partnership and it opened its branch in China in 2012. SEINFLEX pursues perfect products and best quality by building smart factories and operating a precise processing management system.

Customized service is its own differentiated competitiveness. SEINFLEX satisfies its customers 100% by customizing products into the specifications they want. This is how it has been gaining huge attention and positive response from the global market. Established in 2008, the technology research institute has talented, competent researchers who are accumulating independent technology know-hows by demonstrating flexibility in the fast-changing market.

SEINFLEX Co., Ltd. has achieved growth over the last 20 years and will lead the global magnet market in the next 20 years with its world-class technology.





Encoder

High Resolution Performance

01. Absolute Rotary Encoder

- Axial Type
- Radial Type

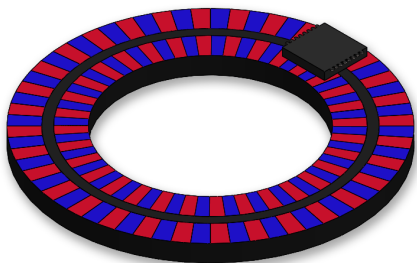
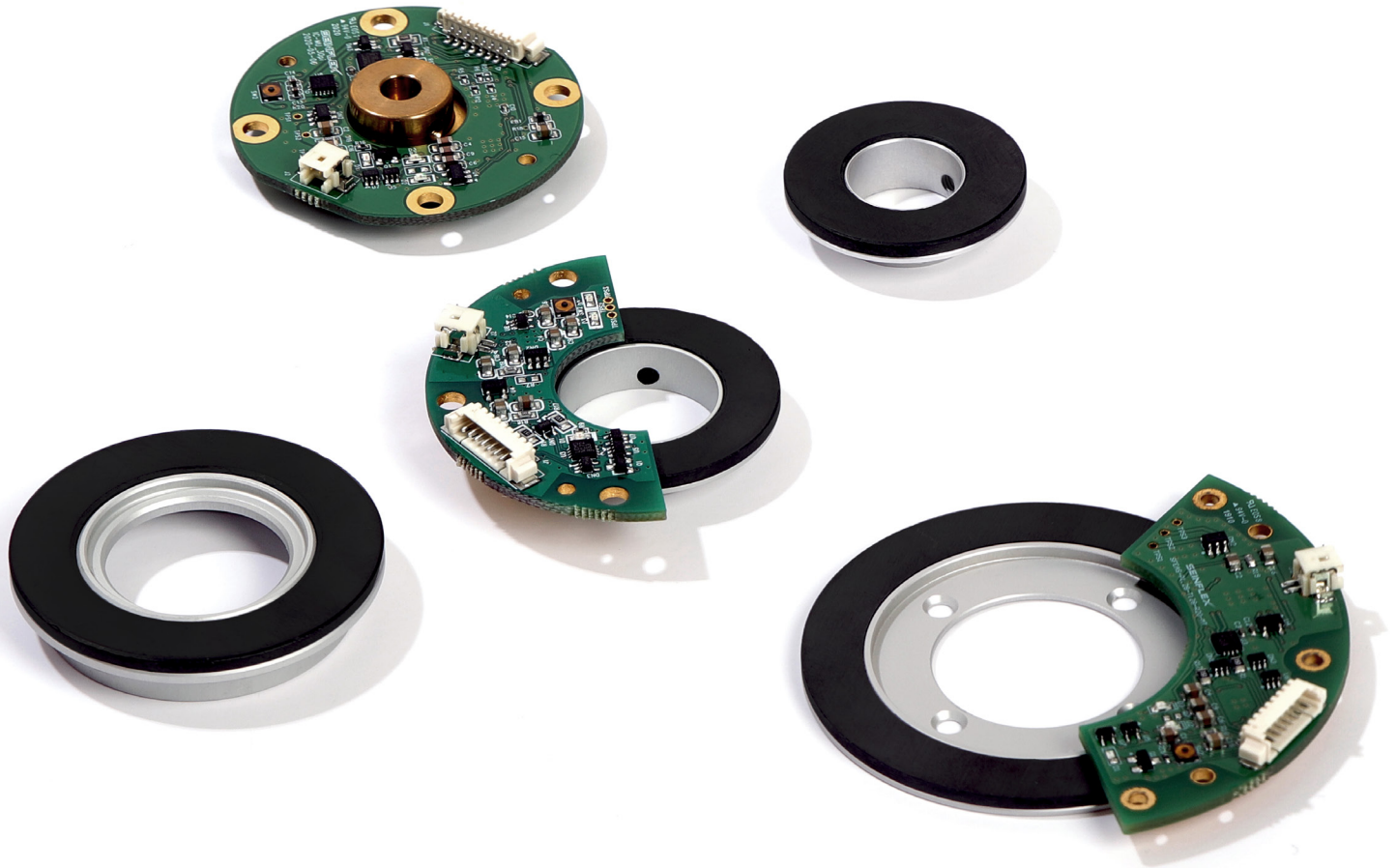
02. Incremental Rotary Encoder

- Axial Type
- Radial Type
- On axis Type

03. Linear Encoder




- Magnetic Type
- Optical Type

Axial Type Absolute Encoder



About the Encoder

- Axial Type Magnetic Absolute Encoder
- Precise Magnetization Technology
- Achieved to Complete 128/126, 64/62 Poles magnet for Encoder

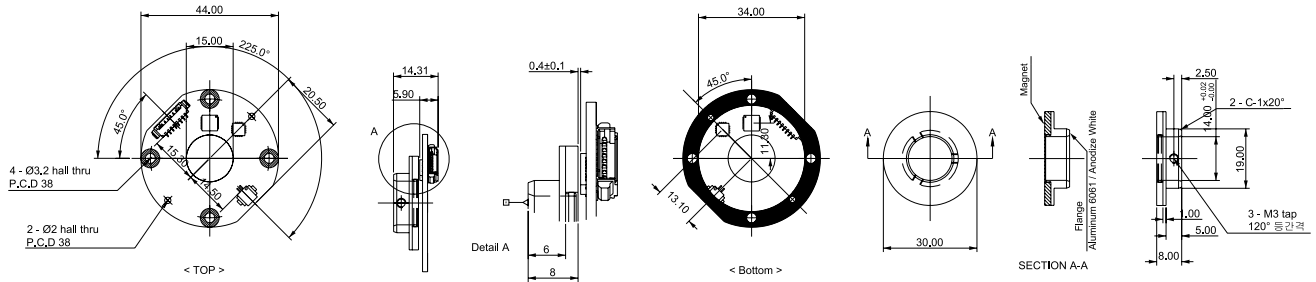
	Ø30 Class	Ø34 Class	Ø44 Class	Ø56 Class
Code Wheel				
Sensor			(TBD)	
Pole	64 / 62	64 / 62	64 / 62	128 / 126
Resolution (bit)	Single-turn : 19 Multi-turn : 16	Single-turn : 19 Multi-turn : 16	Single-turn : 19 Multi-turn : 16	Single-turn : 20 Multi-turn : 16
Wheel Size	Ø30 X Ø14	Ø34 X Ø19	Ø44.8 X Ø34	Ø56 X Ø25
Sensor Size	Ø44 X Ø15	Ø51 X Ø19	-	Ø74 X Ø36
Operation Temperature	-10°C ~ +110°C	-10°C ~ +110°C	-10°C ~ +110°C	-10°C ~ +110°C
Communication Interface	BiSS-C / SSI	BiSS-C / SSI	-	BiSS-C / SSI
Supply Voltage (Supply Current)	5V±10% (Typ. 4mA)	5V±10% (Typ. 4mA)	-	5V±10% (Typ. 4mA)
Battery Supply Voltage (for multiturn)	3 to 5.5V (Typ. 3.6V)	3 to 5.5V (Typ. 3.6V)	-	3 to 5.5V (Typ. 3.6V)
Battery Supply Current (for multiturn)	Max. 800µA (Typ. 10µA)	Max. 800µA (Typ. 10µA)	-	Max. 800µA (Typ. 10µA)

Note

- Main Connector: MOLEX51021 8PIN
- Battery Connector: DF13-2P-1.25H(HIEOSE) 2PIN

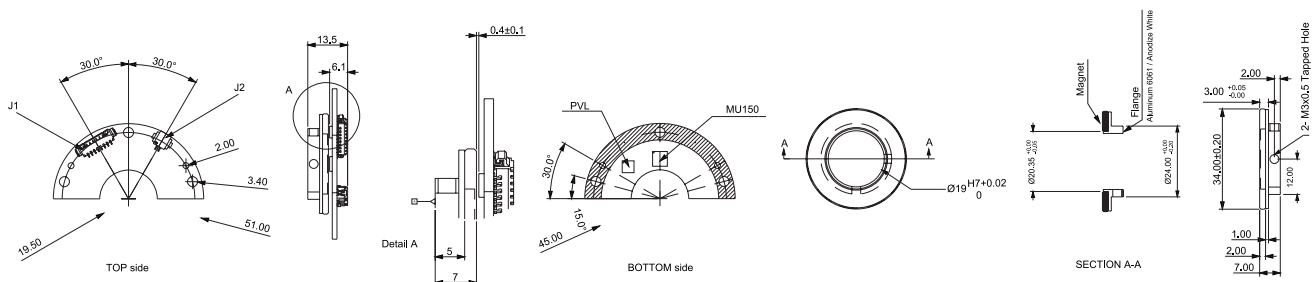
SFEAC-P1.28-T64-H8-AL / SFEAS-P1.28-T64-R19-MT

(For Ø30 Class)



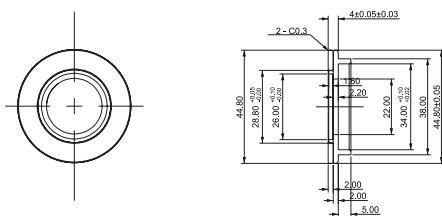
SFEAC-P1.5-T64-H7-AL / SFEAS-P1.5-T64-R19-MT

(For Ø34 Class)



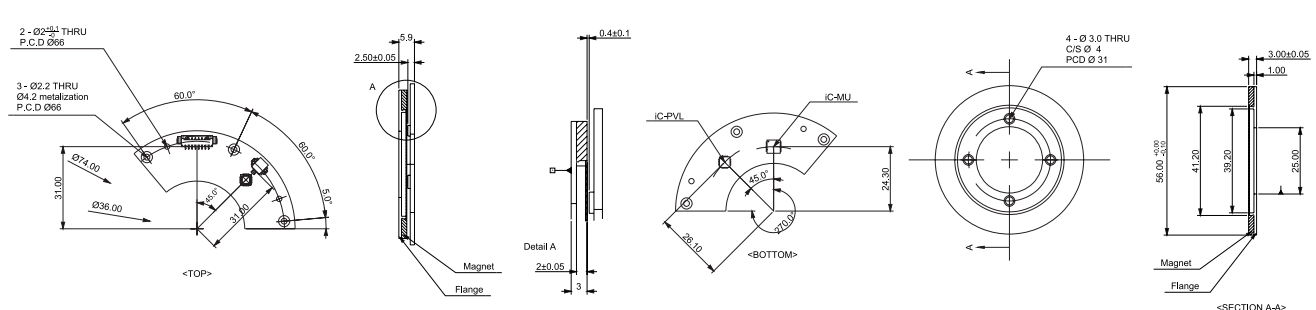
SFEAC-P2.0-T64-H9-AL

(For Ø44.8 Class)



SFEAC-P1.28-T128-H3-AL / SFEAS-P1.28-T128-R20-MT

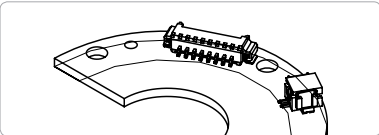
(For Ø56 Class)



Pin Map

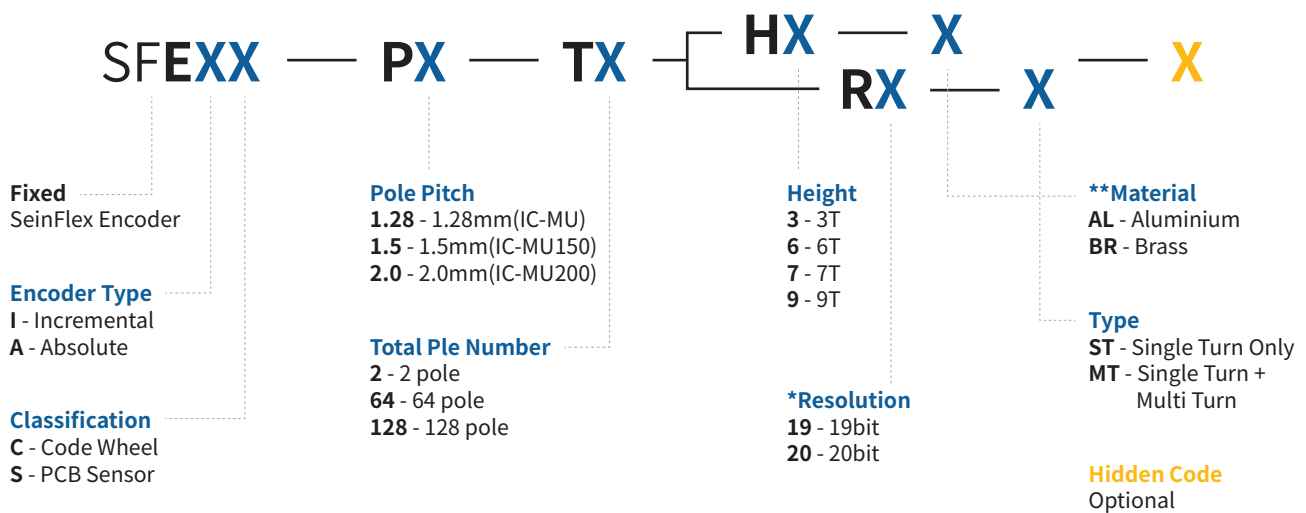
BISS-C / SSI		
Number	Designation	Function
1	VCC	Power Supply Voltage(5V)
2	Data+	Data+ differential signal from Encoder to Driver
3	Data-	Data- differential signal from Encoder to Driver
4	CLK+	Clock+ differential signal from Driver to Encoder
5	CLK-	Clock- differential signal from Driver to Encoder
6	GND	System ground
7	Output	PVL nWarning output (Open Drain Port)
8	Input	PVL Preinput (TTL input Port)

Battery		
Number	Designation	Function
1	V_Battery	Battery Supply Voltage(3.6V)
2	GND	Battery ground



Material Spec.	
Magnet Pole Master Track / Magnet Pole Nonius Track	32 Pole Pair/31 Pole Pair, 64 Pole Pair/63 Pole Pair
Magnet Material	Ferrite
Flange Material	AL6061 / Anodize white

Axial Type Encoder Part Numbering



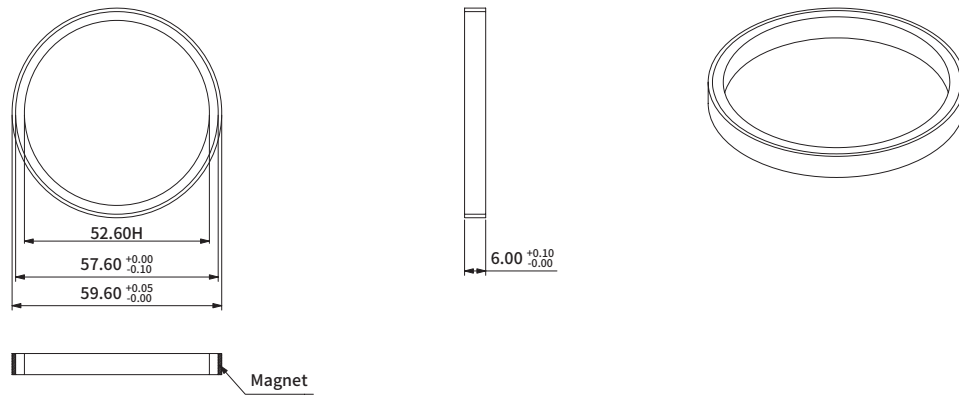
Radial Type Absolute code wheel



About the Encoder

- Radial Type Magnetic Absolute Encoder
- Precise Magnetization Technology
- Achieved to Complete 128/126 Poles magnet for Encoder, First in Korea

Dimensions



Classification		Specification
Sensing Method		Magnet sensing
IC for Sensing		MU150
Magnet pole		Master Track – 64Pole Pair Nonius Track – 63Pole pair
Pole Pitch		1.5mm
Magnet Outline		Ø59.6 (mm)
Inner Diameter		Ø52.6 H7 (mm)
Temperature	Operation	-20°C to +100°C
	Storage	-30°C to +125°C
Magnet Material		Rubber
Flange Material		SUS304
Weight		24g

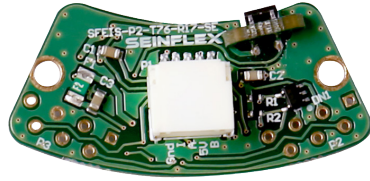
Radial Type Incremental Encoder



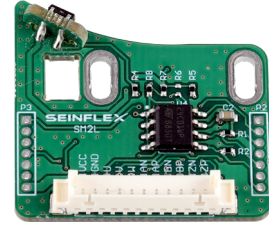
About the Encoder

- Radial Type Magnetic Incremental Encoder
- Precise Magnetization Technology
- Achieved to Complete 76 Poles magnet for Encoder, First in Korea

SFEIS-P2-T76-R16-SE



SFEIS-P2-T76-R16-DF

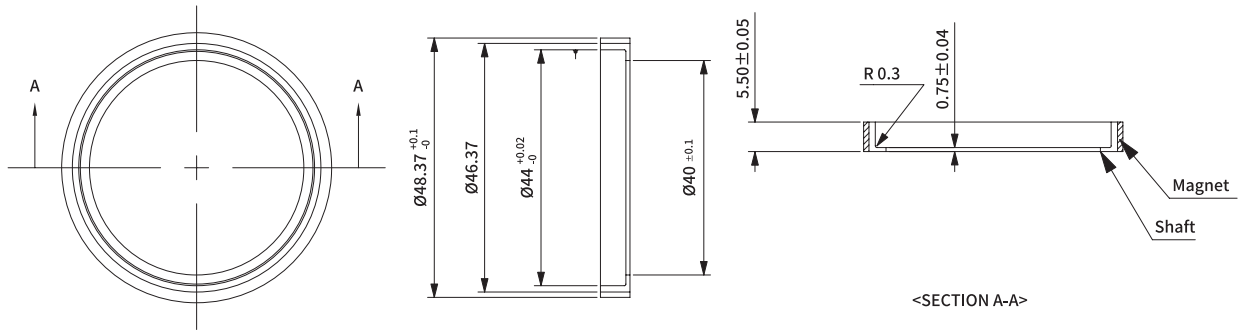


Classification		Specification	
Resolution		Min. Over 14bit (Default, 19,456 pulse)	Min. Over 14bit (Default, 76,000 pulse)
Sensing Method		Magnet	
Supply Voltage		5V ±10%	
Magnet		MR Sensor, Hall Sensor	
Supply Current		Max. 210mA	
ESD Protection		IEC 61000-4-2, Indirect radiation Level 1 (± 2kV)	
Communication		Single ended I/F for ABZ	Differential I/F for ABZ, UWW
Maximum RPM		Over 4,000RPM	
I/F for Monitoring		I2C	
Output Frequency		TBD	
Magnet pole		76 poles, 2mm pole pitch	
Temperature	Operation	-20°C to +100°C (IEC 60068-2-1, IEC 60068-2-2)	
	Storage	-30°C to +125°C (IEC 60068-2-1, IEC 60068-2-2)	
Humidity		RH20% ~ RH90% (non-condensing)	
Material		Magnet: Plastic Magnet	Flange: SUS304
Air Gap		Under 0.5mm Recommended	
Weight		PCB: 1.5g / Code Wheel: 11.5g	
Vibration		IEC 60068-2-6	
Shock		IEC 60068-2-27	

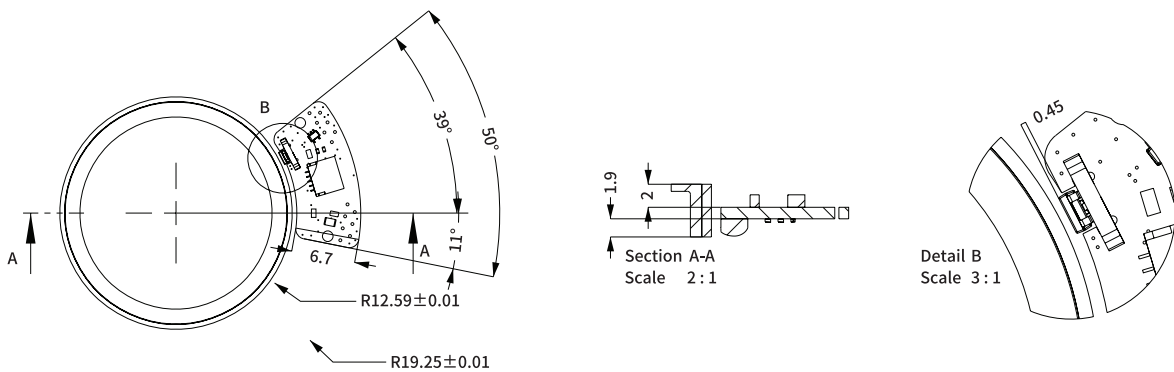
Note

- Main Connector(5Pin) : SM05B-NSHSS-TB
- Main Connector(11Pin) : FCI10114828-11108LF

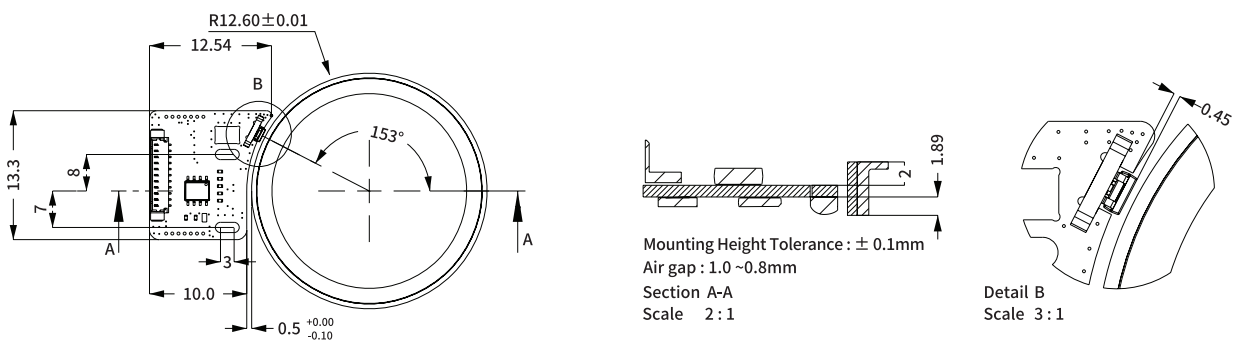
SFEIC-P2-T76-H5.5-SU



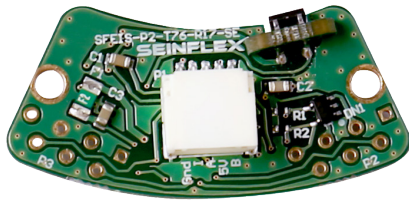
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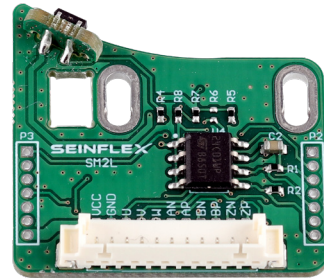
SFEIS-P2-T76-R17-DF



SFEIS-P2-T76-R16-SE



SFEIS-P2-T76-R16-DF

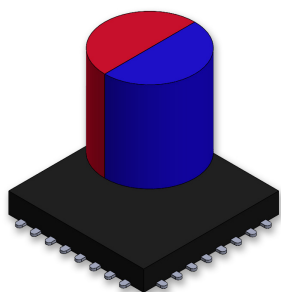
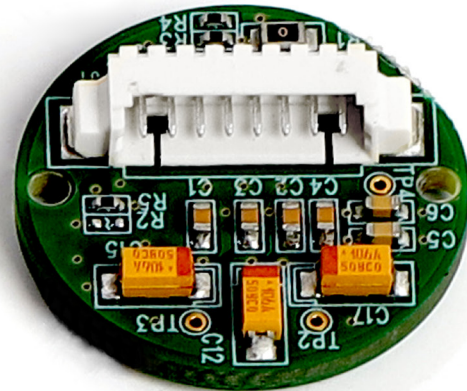
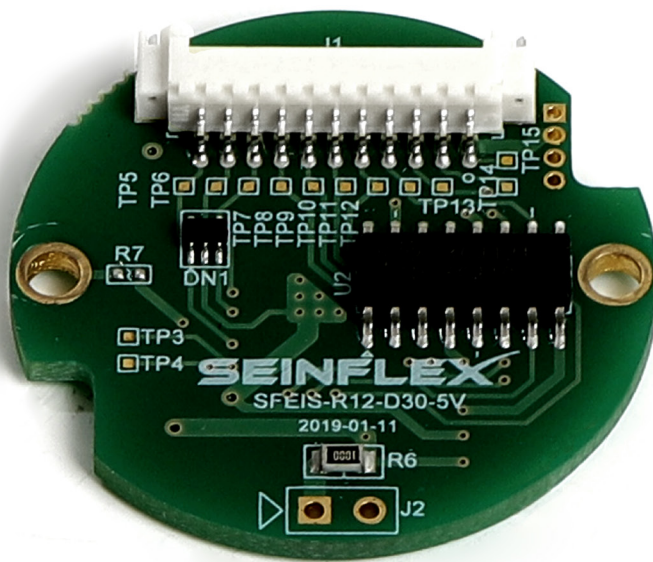


Pin Map

Number	Designation	Function
1	GND	Ground
2	Z	Z Signal
3	A	A Signal
4	VCC	5V Power In
5	B	B Signal

Number	Designation	Function
1	VCC	5V Power In
2	GND	Ground
3	U	U Signal
4	V	V Signal
5	W	W Signal
6	A-	A- Signal
7	A+	A+ Signal
8	B-	B- Signal
9	B+	B+ Signal
10	Z-	Z- Signal
11	Z+	Z+ Signal

On axis Type Incremental Encoder

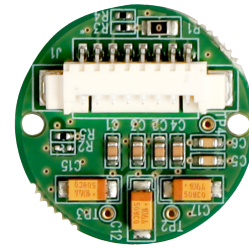


About the Encoder

- On Axis Type Magnetic Incremental Encoder
- Simple Installation and Setup
- Non-contact, No-friction design
- Minimizing cost

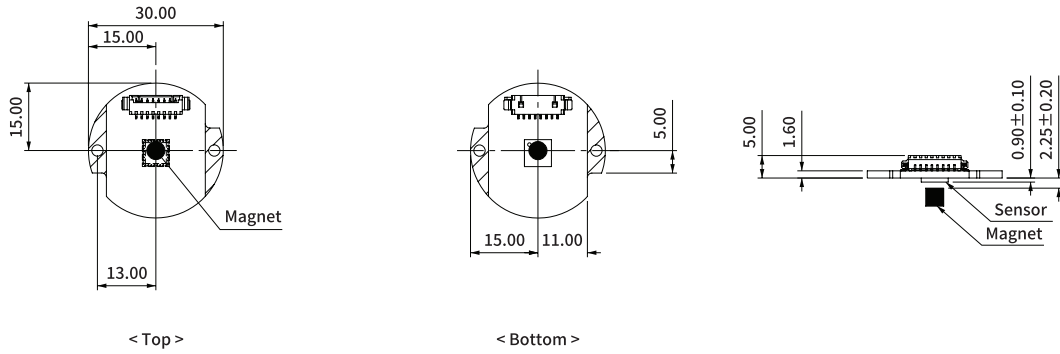
SFEIS-R12-D30-5V

SFEIS-R12-D20-5V

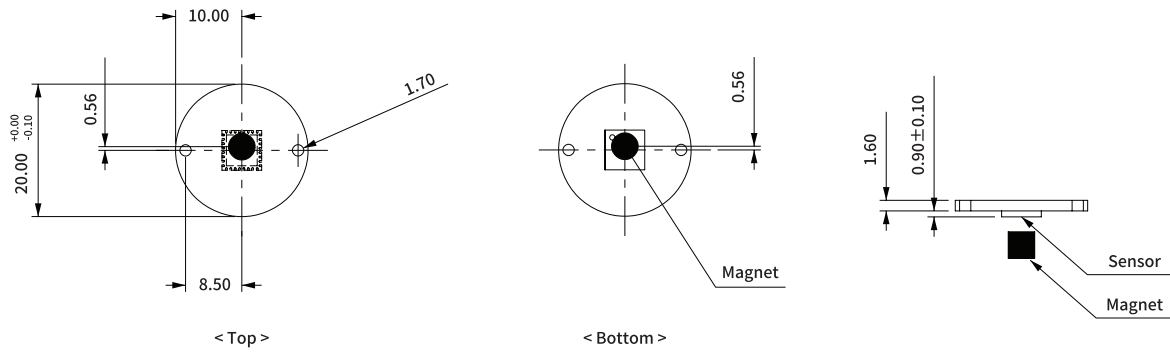


Classification		Specification		
Sensor Board	Resolution	12 Bit Incremental		
	Speed	Over 30,000RPM		
	Size	Ø30	Ø20	
	I/O	Differential ABZ	Single Ended ABZ	
		UVW	-	
	Supply Voltage	5V		
	Zero set	Supporting presentable zero position		
	Connector	11pin connector with 1.25mm pitch		
Operating Condition	-20°C ~ +85°C			
Magnet	Material	Diametrically polarized Neodymium Magnet		
	Size	Ø4mm x 4mm		

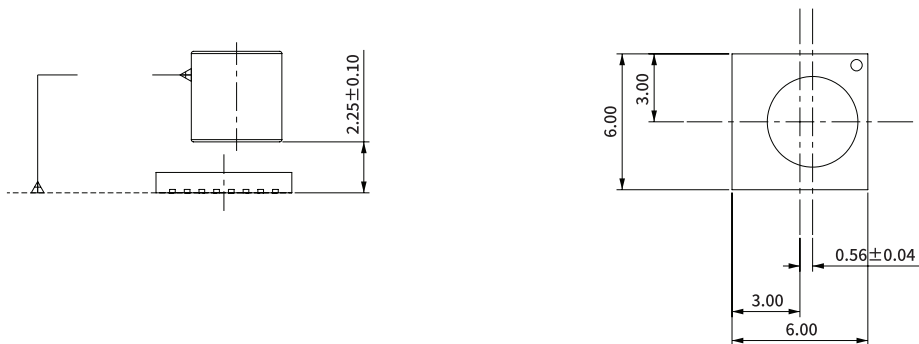
SFEIS-R12-D30-5V



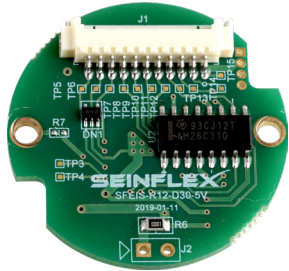
SFEIS-R12-D20-5V



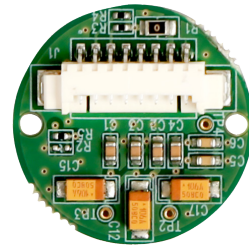
Mounting Instructions



SFEIS-R12-D30-5V



SFEIS-R12-D20-5V



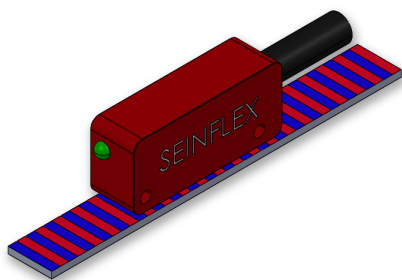
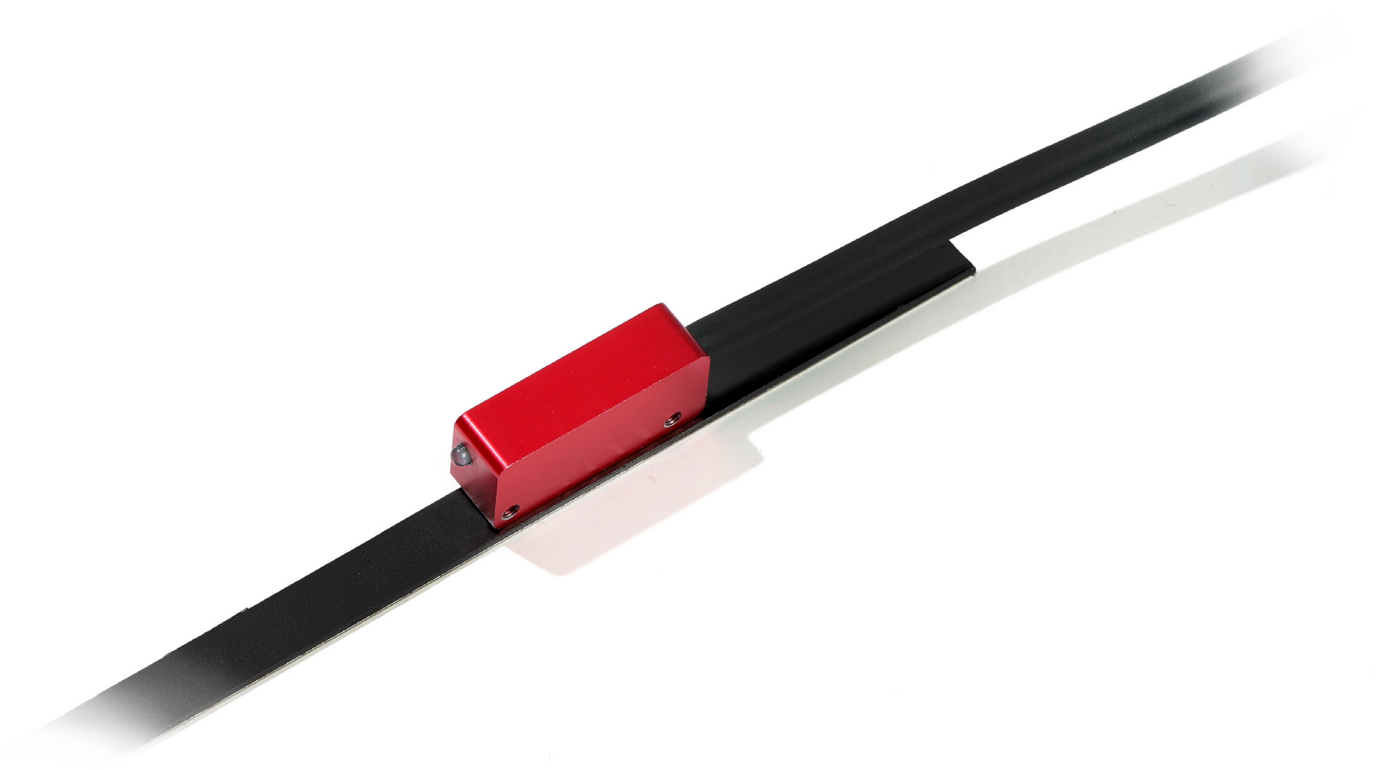
Pin Map

Number	Designation	Function	Number	Designation	Function
1	GND	Ground	1	Zero	Zero Point
2	VCC	5V Power In	2	SDA	Communication PIN for SDA
3	Z-	Z- Signal	3	SCL	Communication PIN for SCL
4	Z+	Z+ Signal	4	Ri	Index
5	B+	B+ Signal	5	B	B Signal
6	B-	B- Signal	6	A	A Signal
7	A-	A- Signal	7	VCC	5V Power In
8	A+	A+ Signal	8	GND	Ground
9	U	U Signal			
10	V	V Signal			
11	W	W Signal			

Note

- Main Connector(11Pin) : 12505WR-11
- Main Connector(8Pin) : MOLEX53261-08

Magnetic Linear Encoder



About the Encoder

- Magnetic linear Encoder
- Environment-Resistant Encoder
- Suitable for logistics and stage equipment
- Minimizing Cost

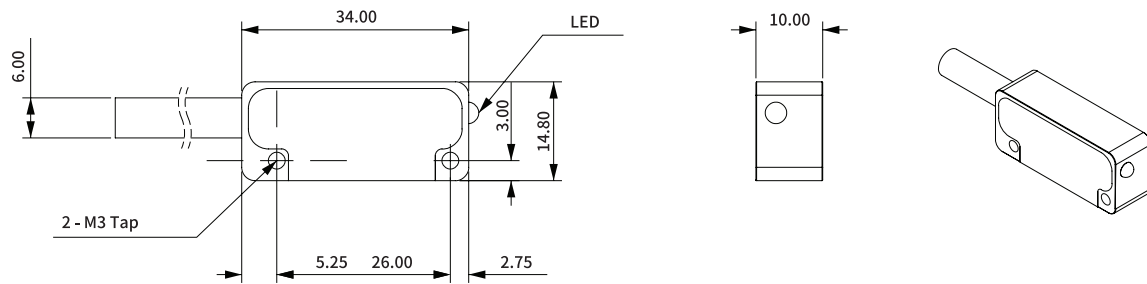
Technical Specification

Classification	Specification	
Supply Voltage	5V \pm 5%	
Supply Current	< 30mA	
Resolution	1 μ m	
Repeatable Positioning Accuracy	5 μ m	
Absolute Positioning Precision	0.02mm	
Temperature	Operation	-10 ~ 80°C
	Storage	-40 ~ 85°C
Operation Humidity	10% ~ 90% relative humidity	
Degree of Protection	IP67	
Acceleration	20G	
Cable	Strengthen shielding high flexible cable (D-Sub option)	
Weight	20g	

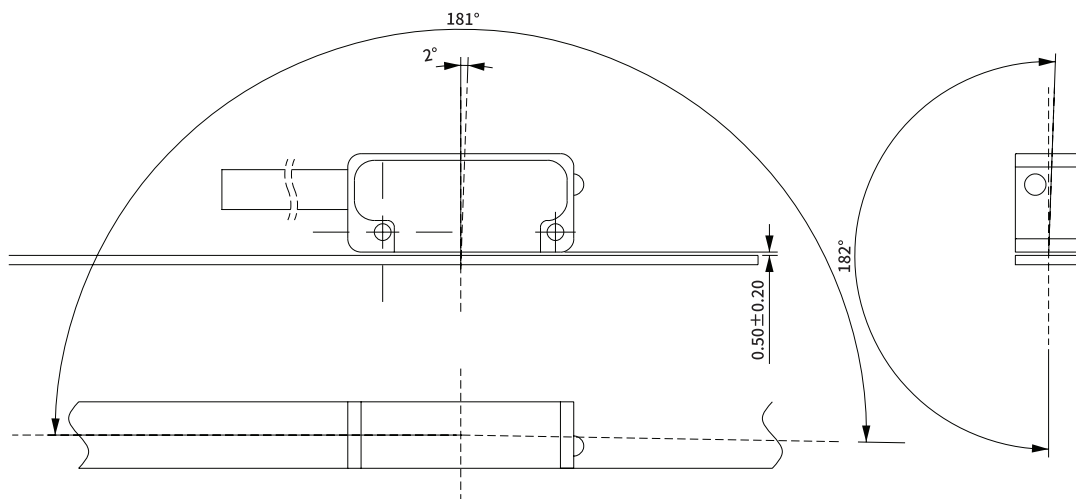
Speed

Resolution	Maximum speed	Output
1 μ m	3.5m/s	3.5MHz
2 μ m	7m/s	3.5MHz
5 μ m	15m/s	3MHz
10 μ m	30m/s	3MHz

Dimensions



Installation Tolerances



Cable Specification

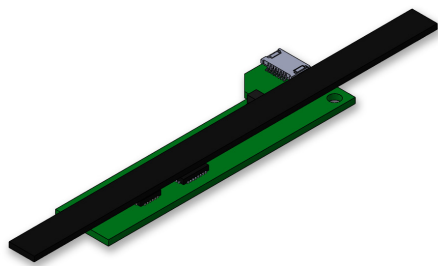
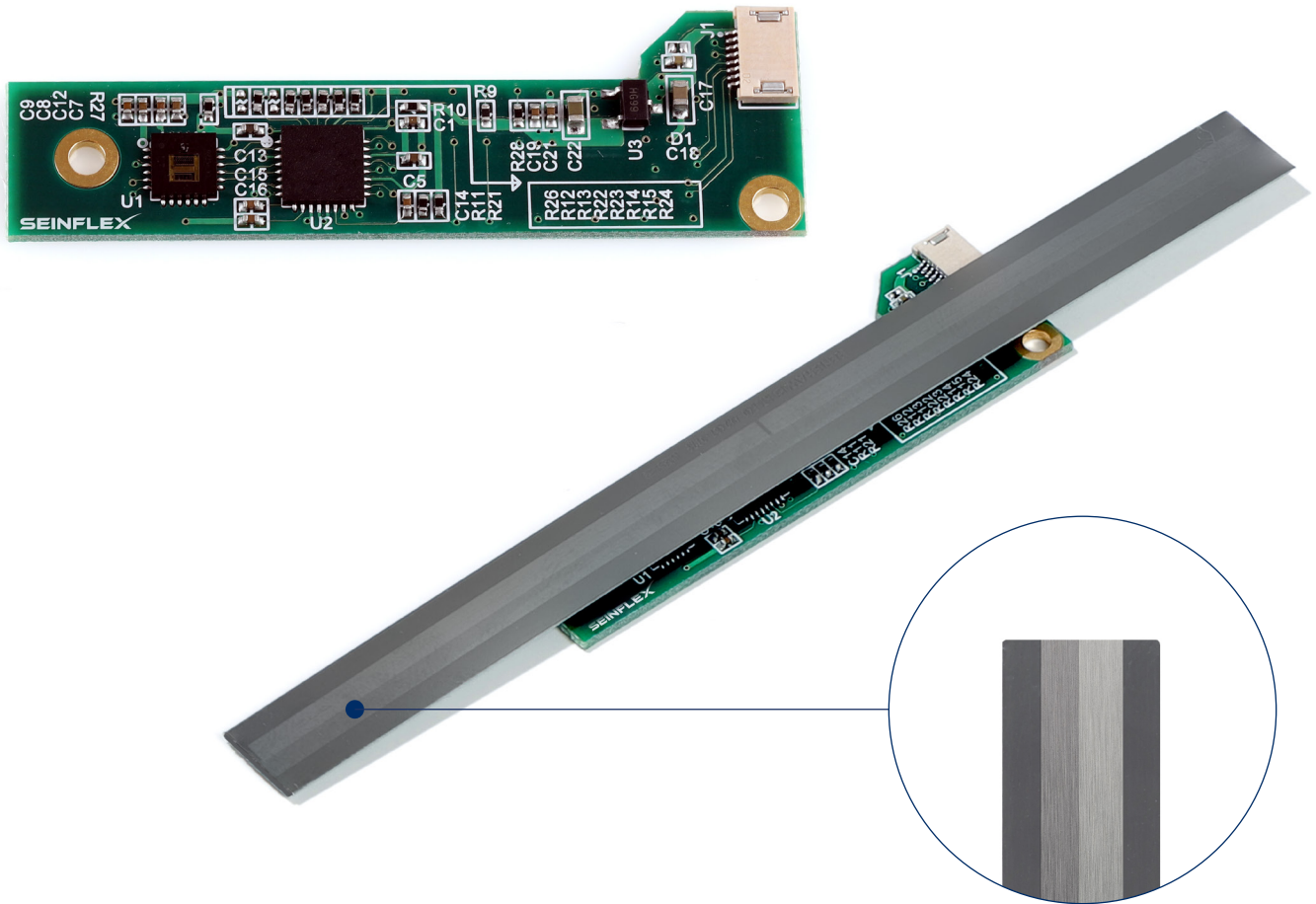
Classification	Specification
Cable Type	TA19/0.08
Wire	0.1mm ² , 0.4mm, ≤ 207.6 Ω/km
Coil	Copper foil wire 0.18mm
Density	≥ 85%
Jacket material	TPU
Standard thickness	0.65mm
Min thickness	0.52mm
Outer diameter	5.50 ±0.2mm
Bend radius	6 Multiple times the outer diameter of the cable

Pin Map



Color	Designation
Red	5V
Grey	GND
Green	A+ Signal
Brown	A- Signal
Yellow	B+ Signal
Black	B- Signal
Orange	Z+ Signal
Blue	Z- Signal
Silver	Shield

Optical Linear Encoder



About the Encoder

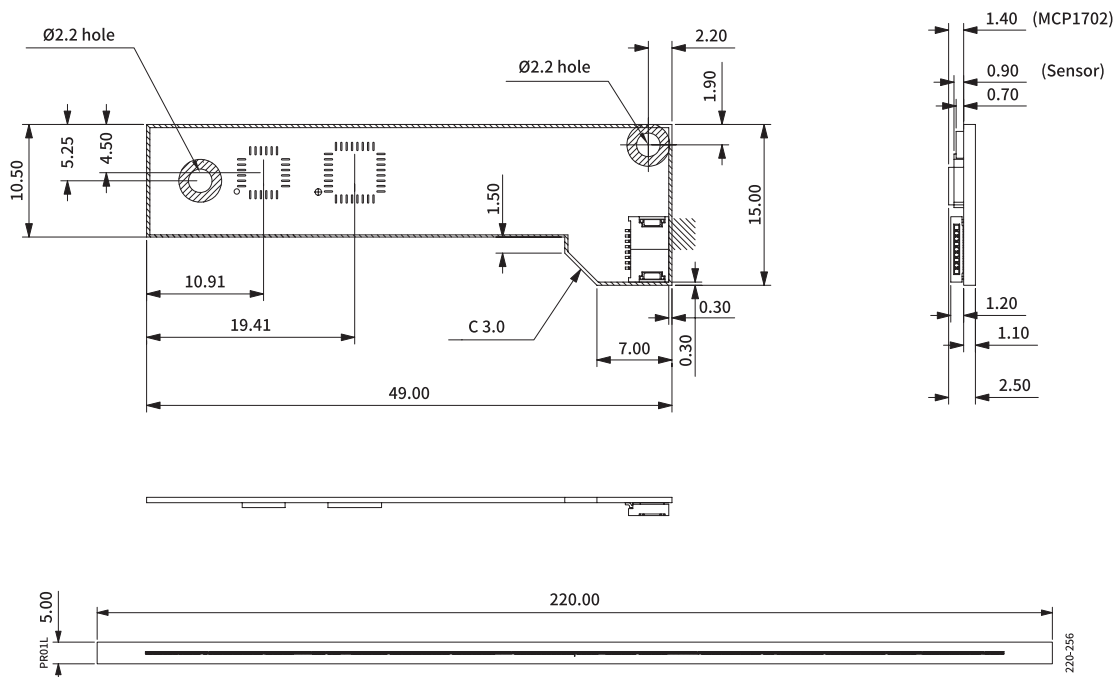
- Optical Linear Encoder
- Compact-Size
- Pick&Place Advantage
- Minimizing Cost

Classification	Specification
Sensing Method	Optic
Main Supply Voltage	5V \pm 10%
Signal	ABZ square wave output (differential)
Resolution	1 μ m
PCB size	49*15*2.5(mm)
Air Gap	1mm to 3mm (recommendation 1.5mm)
Linear Scales	256 μ m period length
Resolution	1 μ m (Fixed)
Operating temperature	-40°C to +105°C
Relative humidity	85%
Output signal	Differential RS422 for A, B, Z
Max output speed	12.5Mhz
PCB outline	49 x 15(mm)

Note

- Output Connector : Molex 51281-0894 (0.5mm pitch FFC)

Dimensions



Pin Map

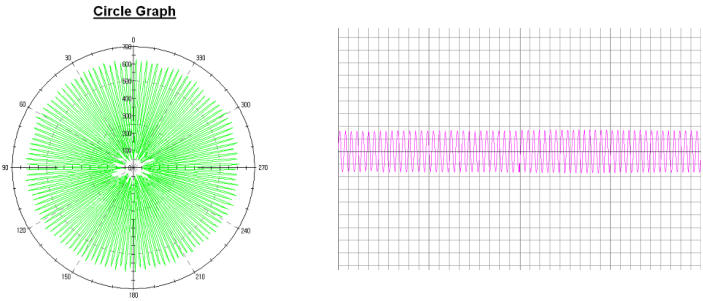
Number	Designation	Function
1	VCC	Power Supply Voltage (5V)
2	GND	System ground
3	A+	A+ signal
4	A-	A- signal
5	B+	B+ signal
6	B-	B- signal
7	Z+	Z+ signal
8	Z-	Z- signal

Multiplex Material Magnet Ring

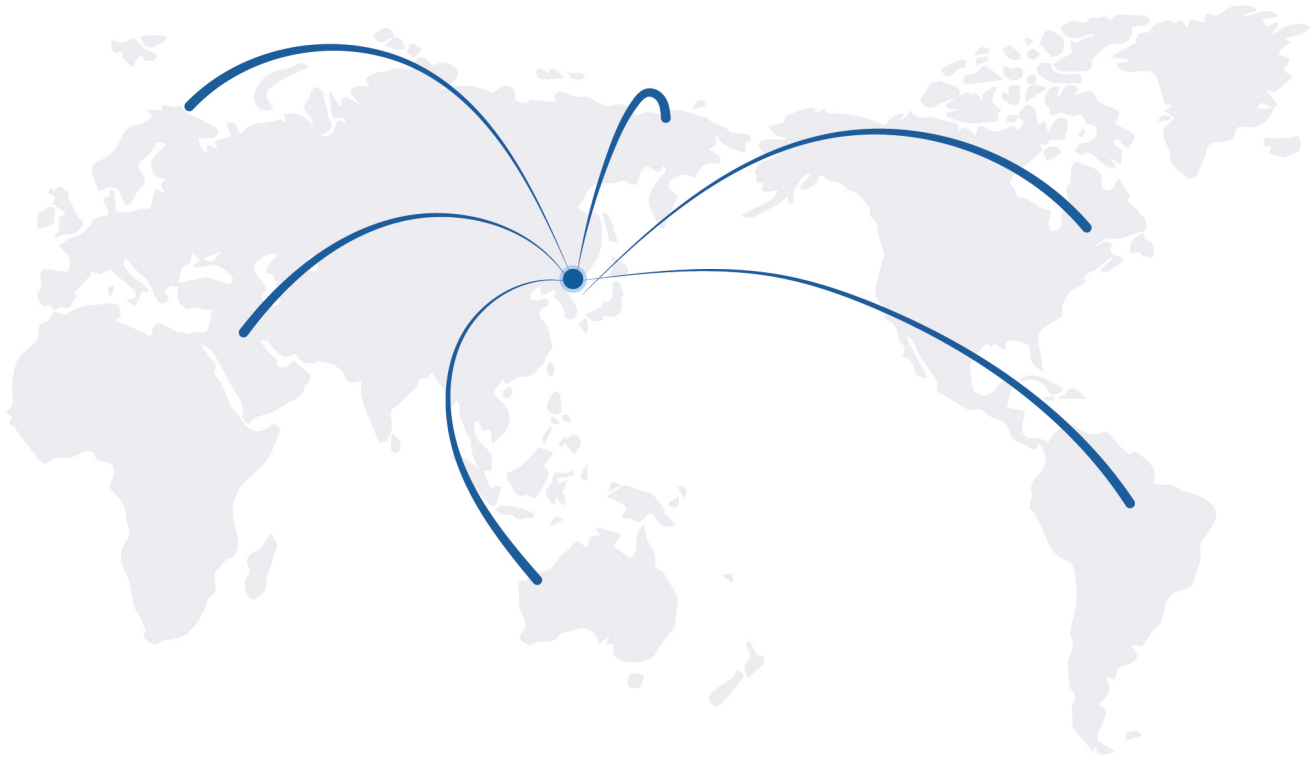


About SEINFLEX Magnet Ring

- Any Type of Material and Customizing Available
- Technology of Multi-Pole Magnetization
- Sensor Board is Possible



	Temperature	Dimension	Ring type	Magnetization
Plastic	-20°C ~ 120°C	Φ30~Φ150	Aluminium Stainless Alloy Steel Brass ETC.	ABS: 64/63 Pole Pair 32/31 Pole Pair INC: 38 Pole Pair/ 3 Poles ABZ
Rubber	-20°C ~ 100°C			
Ferrite	-20°C ~ 120°C			
Nd-Bonded	-20°C ~ 150°C			
Nd-Sintered	-20°C ~ 120°C			



PARTNERSHIP



LG전자



Hanwha



LG Innotek



SEINFLEX



Head Office & R&D Center

SEINFLEX

68, Anyangcheondong-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea, 14042 Korea
T. +82-31-429-1803 / F. +82-31-459-1806 / H. www.seinflex.com / E. seinflex@seinflex.com

Factory in China

No.36 Zhiying Street High-tech Zone Suzhou City (4 Floor South Building Jiemei Industrial Park)
T. +86-512-6690-1901 / F. +86-512-6690-1902