General

- MultiDimension Technology (MDT) Magnetic Ring Encoder is a non-contact incremental encoder for spindle rotation speed or displacement measurement
- This product utilizes the self-developed Tunneling Magnetoresistance (TMR) sensor technology
- The output signal includes two orthogonal differential square wave signals with an index signal and their inverse signals
- Magnetic Ring is not included in the product (Providing two matching magnetic rings , which can be purchased separately according to your needs)
- This product can support a variety of magnetic rings (Encoders can be customized according to specific magnetic rings)

Features

- Output signal level TTL/RS422 with high quality
- Support 2mm wide magnetic ring
- High resolution, up to 256X interpolation per period
- High input frequency, up to 700kHz
- High output frequency, up to 10MHz
- Temperature range from -20°C to 100°C
- Protection grade IP68

Advantages

- The internal components are fully encapsulated, and the metal housing ensures the maximum protection grade of the encoder
- No abrasion, vibration resistance and it can work in water, oil, dust and other severe environments
- Large tolerance to air-gap and installation position
- Easy to install thanks to its inner self-calibration system
- Interpolation can be customized according to customer requirements, up to 256X interpolation per period (0.25/step fine tuning)

Applications

- CNC machine
- Electric spindle
- High speed servo motor
- Elevators

MultiDimension Technology(MDT®)
No. 7 Guangdong Road Zhangjiagang
Free Trade Zone Jiangsu, China

Phone：0512-56366222
Fax：0512-56366200

HomePage：www.dowaytech.com
E-Mail：sales@dowaytech.com

Technical Data

Electrical Data

SYMBOL	PARAMETER NAME	DATA	UNIT	NOTE
Vcc	Supply Voltage	5±5%	V	
Icc	Input Current	30±1	mA	No-load
Ip	Interpolation	⩽Max.256		0.25/step fine tuning
Fin	Input Frequency	⩽700k	Hz	
Fout	Output Frequency	⩽10M	Hz	
To	Working Temperature	-20~100	°C	
Ts	Storage Temperature	-30~110	°C	
Vout	Output Signal	TTL/RS422		Adjustable Z signal width
IL	Output Current	⩽27	mA	RL⩾100Ω
Jitter	Waveform Jitter	⩽20	%	Below 32X interpolation

Mechanical Data

SYMBOL	PARAMETER NAME	DATA	UNIT	NOTE
D	Mounting Hole Distance	34	mm	Using 2 M4 screws
Gap	Flight Distance	0.5	mm	Providing installation pad
Tol	Mounting Tolerance	±0.3	mm	
P	Protection Grade	IP68		

Matching Magnetic Ring Data

Matching magnetic ring contains two specifications ---A and B, other special requirements need to be customized

SYMBOL	OUTER DIAMETER	INNER DIAMETER	THICKNESS	NUMBER OF POLES	WIDTH OF POLES	A INDUCTIVE POSITION	Z INDUCTIVE POSITION	MOUNTING HOLE DISTANCE	MOUNTING HOLE DIAMETER	UNIT
A	83	50	13	128	2	3	7	64	4.5	mm
B	52	25	13	80	2	3.5	6.5	36	3.5	mm

1、The inner diameter of the magnetic ring can be customized according to the customer demand;

2、Mounting holes can be canceled;

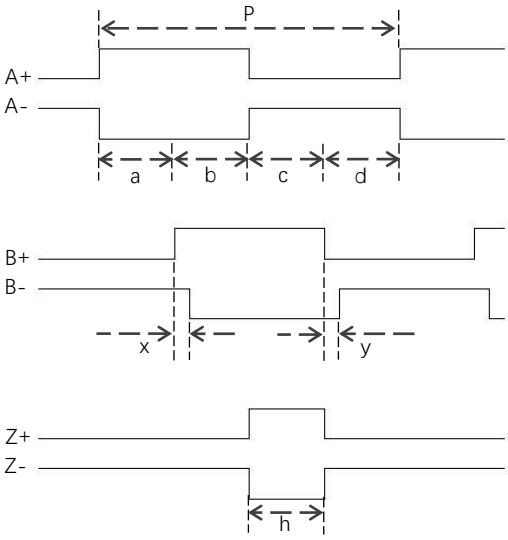
3、It is not recommended to install mounting holes when the inner diameter is too large;

4、The surface of the magnetic ring is fully encapsulated, so there is no need to worry about the internal magnets being thrown out.

Description

Output signals

The encoder outputs are TTL signals. It has 6-way signals including A+A-B+B-Z+Z-. AB signals are two orthogonal differential square wave signals. The standard Z signal is half the width of the A signal。



A/B/Z Signal
P = 360°/ number of poles x interpolation ± 20%P
a、b、c、d= 0.25P ± 20%P
a+b、b+c= 0.5P ± 20%P
h = 0.25P ± 20%P
x、y ≦ 100ns (typ.)
Output Frequency = number of poles x interpolation x RPM/60

Interpolation

According to different resolution requirements, the encoder support 0-256x interpolation per period. The interpolation coefficient step length is 0.25, and the output resolution supports integer multiples of 10, or integer multiples of 2. It provides more comprehensive encoder resolution requirements and is flexible to design the measured number of teeth. Otherwise, the width of Z signal is adjustable.

Matching Magnetic Ring

There are two matching magnetic rings A/B for this encoder to choose. It is easy to install with its inner self-calibration system. For a variety of magnetic rings, the installation air gap can work normally between 0.5±0.3mm.

Symbol	Flight Distance	Mounting Tolerance
A	0.5 mm	±0.3mm
B	0.5 mm	±0.3mm

Installation Method

The encoder adopts a miniaturized design, and the mounting hole distance is 34mm, which is compatible with most of the similar products on the market. It is easy to install with the providing installation pad. The installation method is as follows:

1. Fix the encoder using 2 M4 screws. The screws are still not firmly tightened. The encoder should be loose.
2. Use the providing installation pad to adjust spacing.
3. Keep close and pull out the pad.

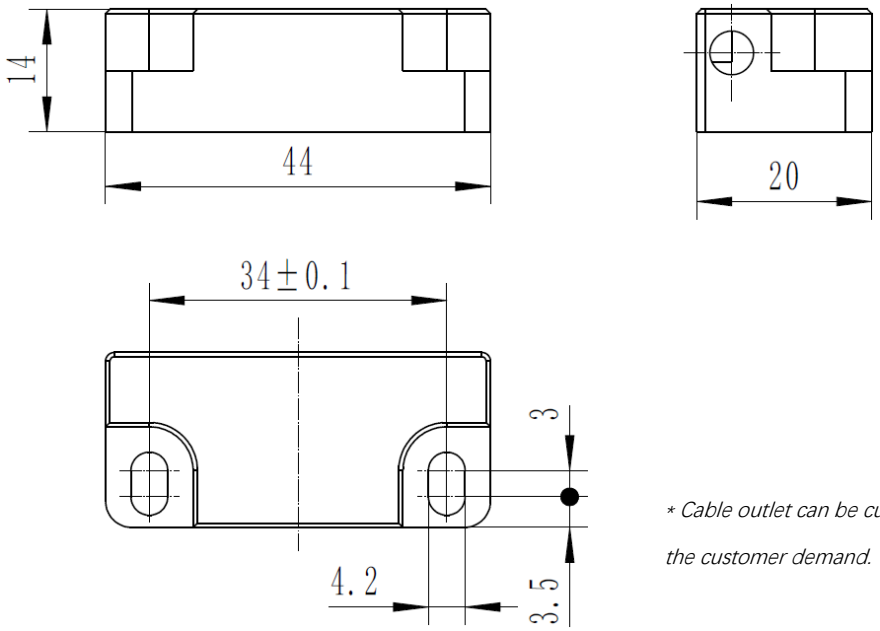
Due to its inner self-calibration system, as long as the installation air gap is ensured within tolerance, the encoder output signal is totally available.

Cable

The encoder adopts 8 core shielded twisted pair line. The cross section of the cable core is 0.14mm^2, and the outer diameter is 5.1±0.2mm. Standard cable length is 1m and other length can be customized.

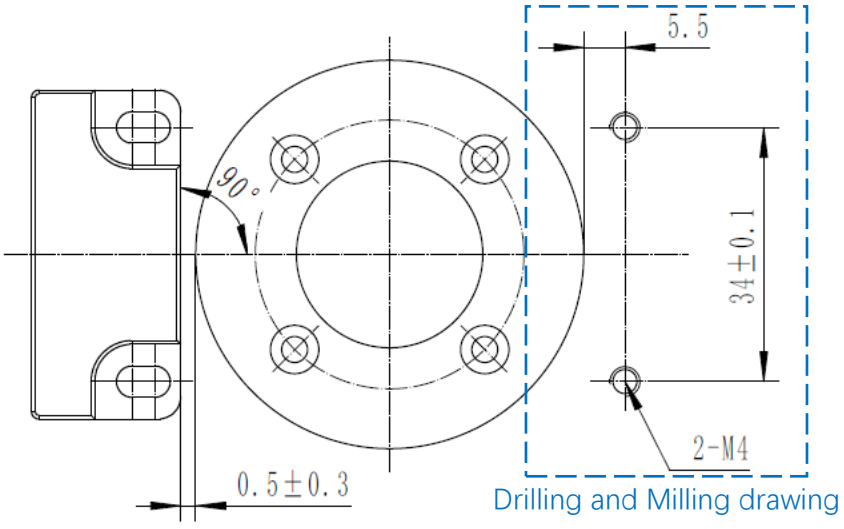
Illustration

Dimensions

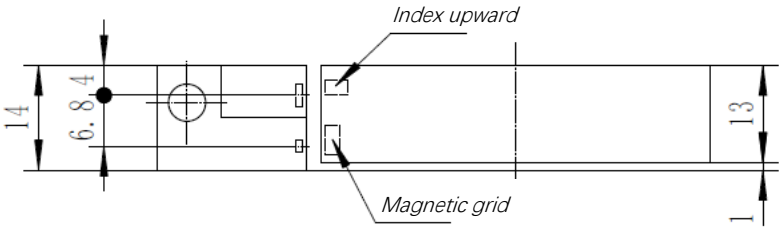


** Cable outlet can be customized according to the customer demand.*

Installation Position



Drilling and Milling drawing



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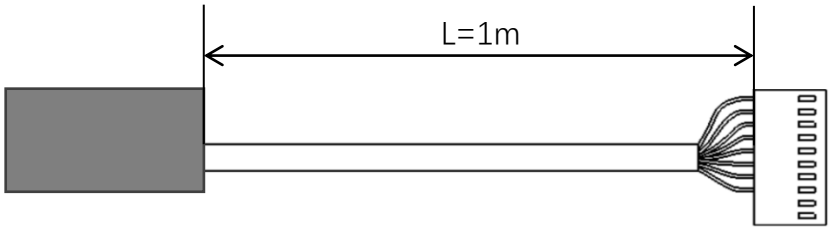
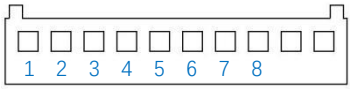
Connection

Connection Type



** Cable length can be customized according to the customer demand.*

Connection Definition



1	2	3	4	5	6	7	8
VA+	VA-	Vcc	GND	VB+	VB-	VZ+	VZ-
Green	Yellow	Brown	White	Blue	Red	Black	Pink

Type Code

ME-□-T-□□-N-□□□□-P-1
1 2 3 4 5 6 7 8

1 Series	2 Width Of Poles (mm)	3 Output Signal Type	4 Number Of Poles	5 Index Upward Magnet Orientation	6 Number Of Pulses Per Revolution	7 Connection Type	8 Cable Length (m)
Magnetic Ring Encoder	2=Width of N or S pole is 2mm	T=Square wave signal	80=80 poles (40 pairs of poles)	N pole facing outward ***(default)***	2048	P=10P Plastic connector ***(default)***	1=1m ***(default)***
	Other width can be customized		128=128 poles (64 pairs of poles)	S pole facing outward	Other pulse can be customized	D=DB15 connector	Other length can be customized

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