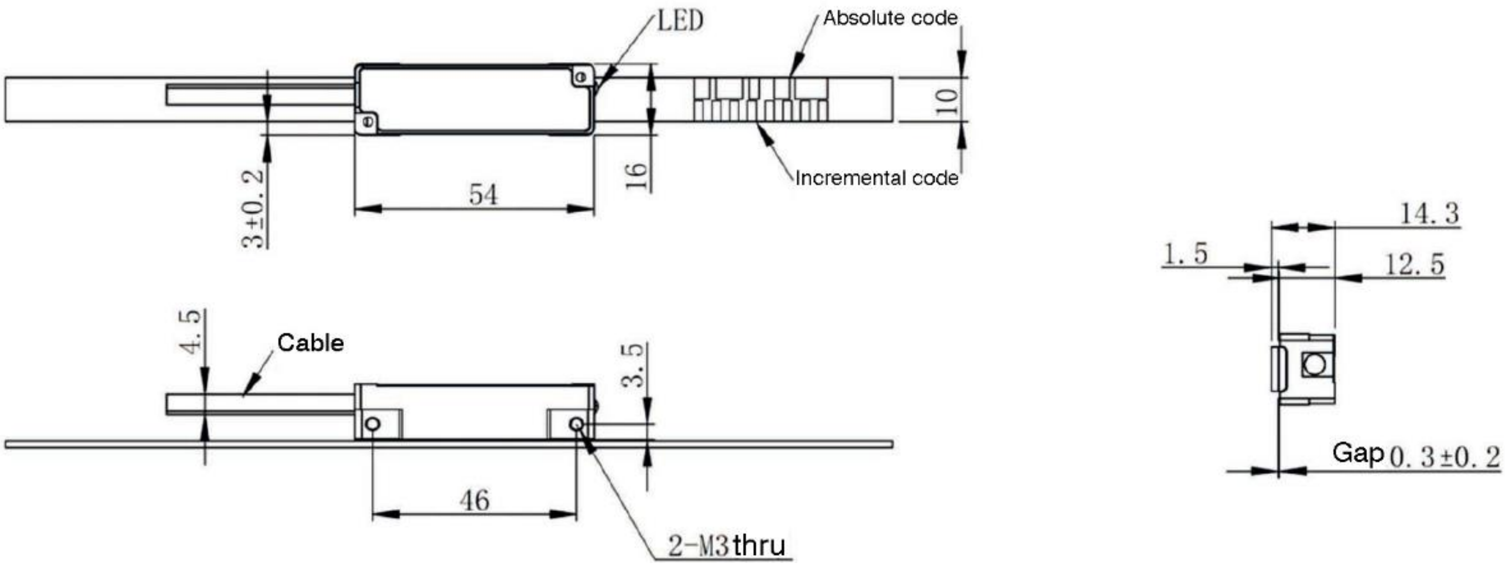
Absolute Magnetic Linear Encoder - MRA20

- **Absolute output signal**
- **Non-contact, high reliability**
- **Insensitive to temperature changes**
- **Industrial-grade noise resistance**
- **Strong anti-fouling ability**
- **Integrated set-up LED**
- **High-flexible shielded cable**
- **Industrial standard Biss-C signal output**

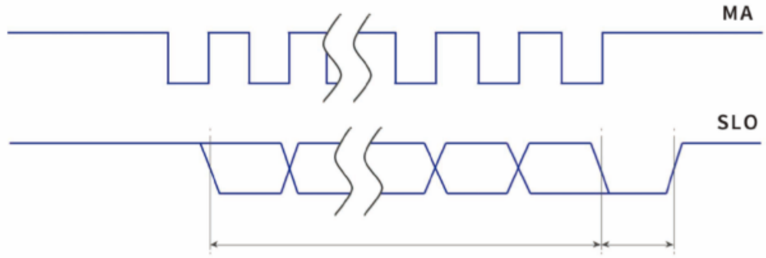
System data:

Item	Parameters
Power supply	5VDC±10%
Operating Current	≤ 250 mA (Max)
Output signals	Biss C
Parameter Configuration Interface	RS485
Resolution	1 um ; 0.5 um
Maximum Speed	1 um : 5 m/s 0.5 um : 3 m/s
Cable Length	0.5 m ; 3 m
Vibration	200 m/s² max @55Hz to 2000Hz
Operating Temperature	0℃ - 55℃
Storage Temperature	-20℃ - 70℃
CE - EMC	EN IEC 61000 - 6 - 4 EN IEC 61000 - 6 - 2
Housing	Stainless Steel
Connection Method	DB9 Connector
Cable Voltage Drop	≈ 80 mV/m
Startup Delay	≤ 350 mS

Dimension（Unit：mm）



BiSS C timing diagram



1. The readhead responds to the controller command by saving the position value 500ns after the falling edge of the MA signal.
2. MA is in the idle high level state and communication begins with the first falling edge.
3. The readhead responds by setting SLO to low at the second rising edge of MA.
4. Ack is the time period during which the readhead calculates the absolute position.
5. When the readhead is ready for the next request cycle, it indicates to the host by setting SLO to high.
6. CRC is in binary format. The most significant bit (MSB) is sent first. The absolute position is in binary format. The MSB is sent first, left-aligned, and the lower bits are set to zero. The CDS bit is always zero.

Position data encoding

Type	Value = 0	Value = 1	Description
Error Bit	Position Data Invalid	Position Data Normal	The error bit is low - active. If low, the position is invalid. - The readhead is out of alignment with the magnetic scale - The magnetic scale is demagnetized. - Incorrect orientation of the readhead or magnetic scale. - The distance between the readhead and the magnetic scale is too large. - The encoder speed is out of operational limits.
Warning Bit	Position Data Valid	Position Data Normal	The warning bit is low - active. If low, the read - head is approaching its limit (> 80% of the maximum temperature). The position data is still valid.

Status indicator LED

LED Status	Feedback	Description
Blue	Normal operation	The read - head is operating normally and receiving 80% of the signal
Purple	Calibration mode	The read - head is calibrating
Red	Error	1. The moving speed of the read - head exceeds the maximum detection speed 2. The installation deviation between the read - head and the magnetic scale is too large 3. The operating temperature of the read - head is too high 4. The magnetic scale is demagnetized or severely scratched 5. The read - head and the scale are in opposite directions Note: To clear the error statues, please power on the device again.

Order table:

Unnamed: 0	Minimum Value	Recommended Value	Maximum Value
Clock Frequency	100KHz	2.5MHz	8MHz
Timeout	-	-	20uS

Order table: Readhead

Feature	Order Code		Specifications	Remarks
Resolution	x	A	1um	23 bit,max speed 5m/s
	z		0.5um	24 bit,max speed 3m/s
Output Signals	B	B	BISS C	
Cable Length	0.3	C	0.3 Meter	Standard
Connections		D	= Open cable ends	
	DB9		DB9 = Connection by 9 pin D-SUB	

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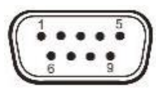
A B C D

Output definition

Function	Signal	Color	9-way D-type
Power	5V DC	Red	5
	0V	Gray	1
BiSS-C	SLO +	White	2
	SLO -	Green	6
	MA +	Brown	4
	MA -	Yellow	8
Shield	Shield	Silver	Shell



Order code: Magnetic scale

Feature	Order Code		Specifications	Remarks
Scale Length	300L	A	0.3 meter	
	500L		0.5 meter	
	-		Customized	Max length 7 meters

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