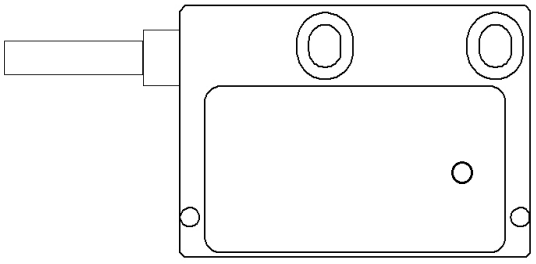
MSR5000 magnetic encoder instructions



■ Summary

The product is a contactless high-speed linear magnetic encoder designed for use in harsh environments. It has a strong capability of protecting from vibration , oil contamination, dust, water and high temperature . What's more, it's small, easy to be installed and workable up to 100 meters. The encoders bring reliable solutions to tough, hard-working applications including woodworking, stone-cutting, sawing, metalworking, textiles, printing, packaging, plastics processing, automation and assembly systems, laser/flame/water-jet cutting, electronic assembly equipment etc.

■ model

MSR	50	X	-X	XXXX	X	X	-XXX
Model	Pole length	P/H	Output Type	Cable length	Connecter	voltage	resolutions
Read head	50:5mm Pole pair length is 10mm	types C:Small volume P:whole sealing H:Two hole	E: Incremental, voltage output	300cm	A: 9 pin DB type plug B:15 pin DB type plug C:7-pin aviation plug N: bare wire	05:5V±5% 24:24V±5%	0.001mm 0.005mm 0.010mm 0.025mm 0.050mm

※Mode of magnetic scale：MS50

■ Specification

Electrical data		
控制输出 Output signals:	voltage output	load current：<10mA，residual voltage：<0.4V
	long-distance driver	LOW (load current：<20mA，residual voltage：<0.4V) HIGH (load current：<20mA，residual voltage：>2.5V)
response time	voltage output	<1us (Cable length：1m，absorption current：<20mA)
	RS422	<1us (Cable length：1m，absorption current：<20mA)
Phase difference of output	The phase difference between A and B：T/4±T/8, T is the period of A or B signal	
response frequency	Max.500KHZ	
The distance between the sensor head	Max.2mm (1mm-1.5mm is recommended.)	
current consumption	<70mA (non- load)	

Environmental Conditions	
Impedance	>20MΩ
withstanding voltage	500VAC(50/60HZ， 1 minute，between the terminal and housing)

Temperature	-10~70℃(cable under non-dynamic Conditions)，Storage：-25~85℃(non-freezing)
Environmental sealing	IP67 (according to IEC)
Vibration	50m/s2 , 10-200 Hz
Housing material	Aluminum alloy
Weight	About 0.15kg

■ wiring diagram

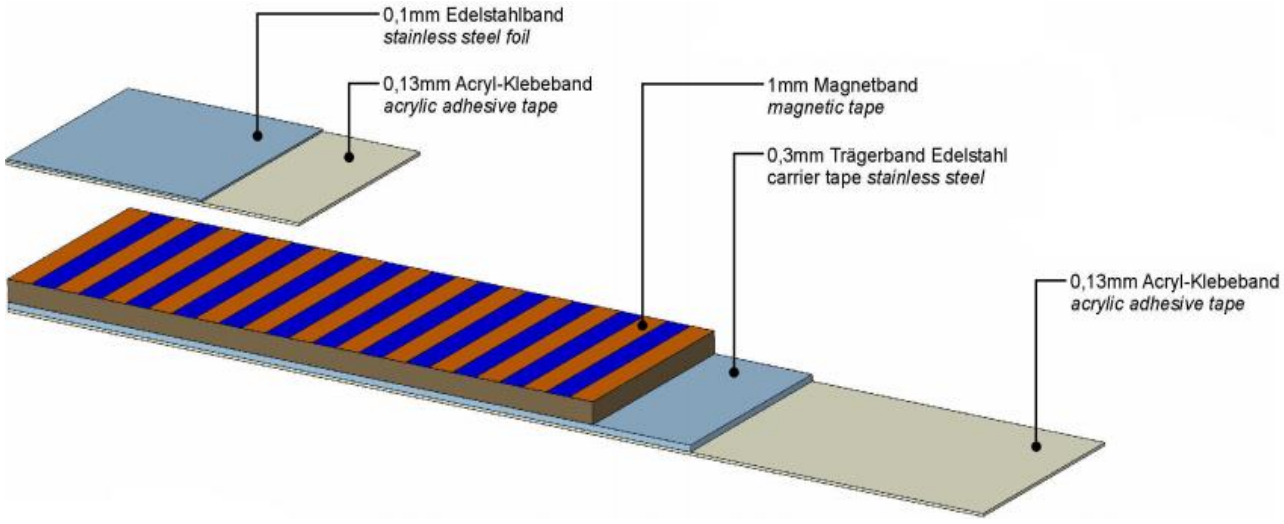
voltage output					
green	white	yellow	red	black	F.G
A	B	Z	VDC	0V(GND)	shielded wire

RS422

green	white	yellow	purple/ grey	blue	orange / brown	red	black	F.G
A	B	Z	$\overline{A}$	$\overline{B}$	$\overline{Z}$	VDC	0V(GND)	shielded wire

■ Installation Instruction of magnetic scale

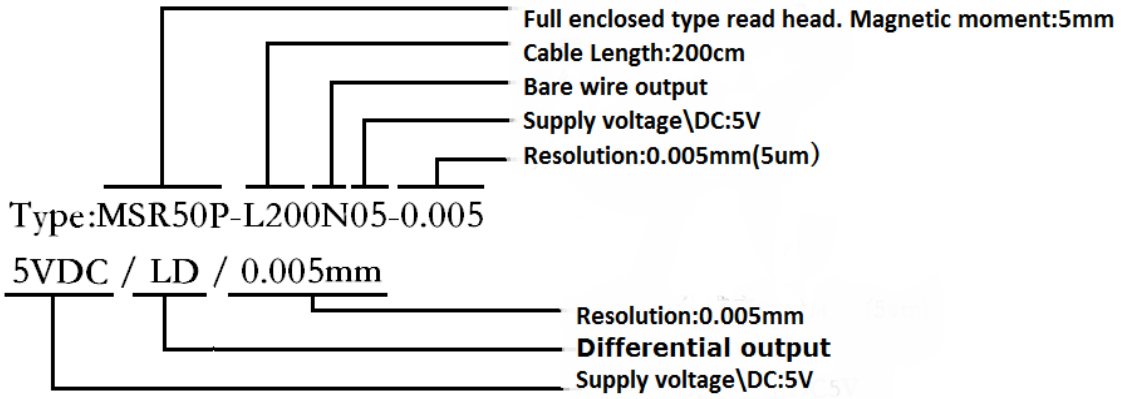
1. Make sure your install table is parallel enough. It is suggested to use magnetic stripe to install aluminum bar.
2. Clean the install table carefully, such as oil contamination, dust, scrap iron, etc.
3. Stick out slowly the adhesive sticker paper of acryl tape and adhere the install table bit by bit as possible.
4. Stick out slowly the adhesive sticker paper of stainless steel foil and adhere the magnetic tape bit by bit as possible.



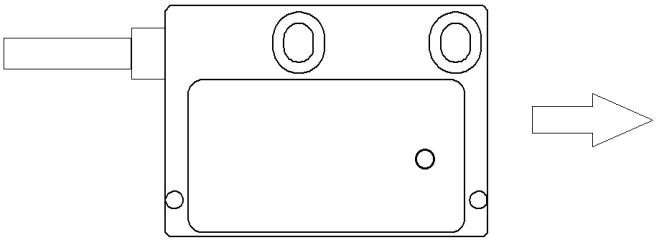
Attention: The magnetic tape must not be subjected to strong external magnetic fields. Direct contact with a permanent magnet of any kind must be avoided.

■ Installation Instruction of read head

1.Make sure your read head model meets the requirement. Read the first page for detail.

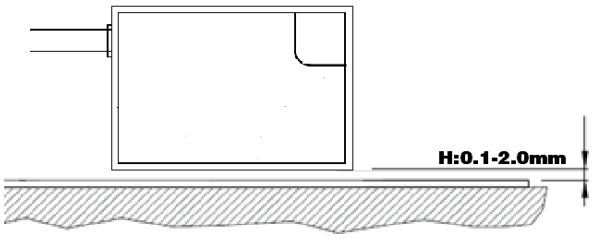
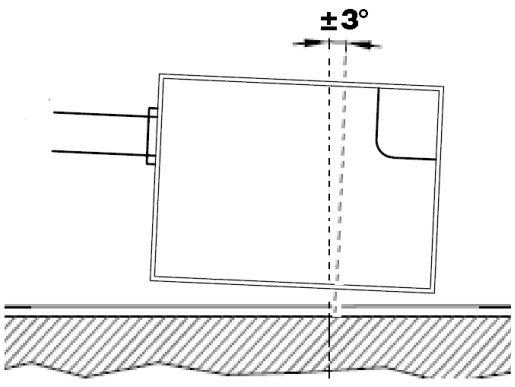
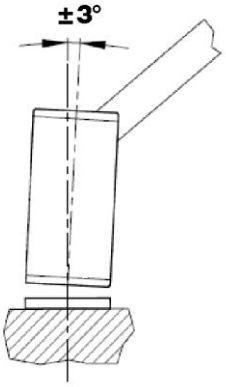
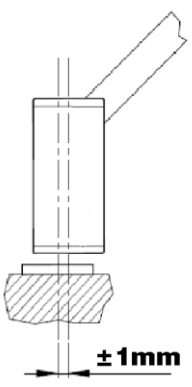


2. Please make sure the moving direction of the read head. Before powering up, carefully check your connections to ensure that no components can be damaged by incorrect wiring and overvoltage. If a moving direction on the contrary is needed, you can change it in the instrument or install the read head reversal.(The later one is not recommended.)



3. When installing the sensor head, the following distances and tolerances must be strictly held:

Installation tolerances:

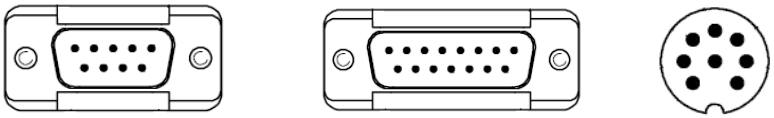
Ride height	Yaw	
		
Pitch	**Roll**	**Lateral offset**
		

■ Connections of read head and instrument

1. Output wires of read head

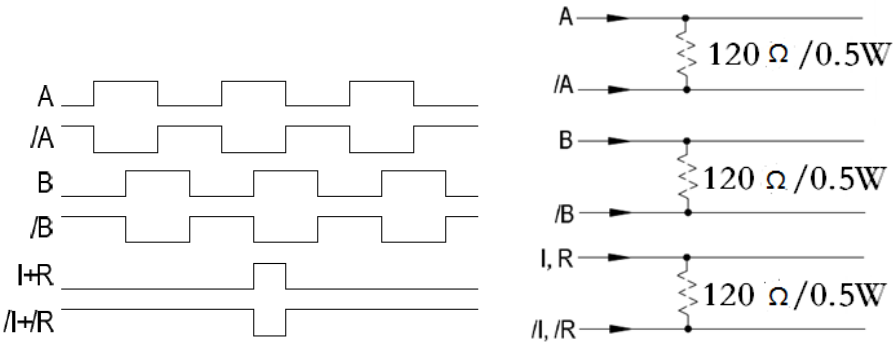
   Common cable length:200cm.(Longer length can be customized.)

   Each terminal of bare wire has reference signal. Some special connectors need to customize, such as 9 pin DB type male, 15 pin DB type male and 7-pin aviation plug.

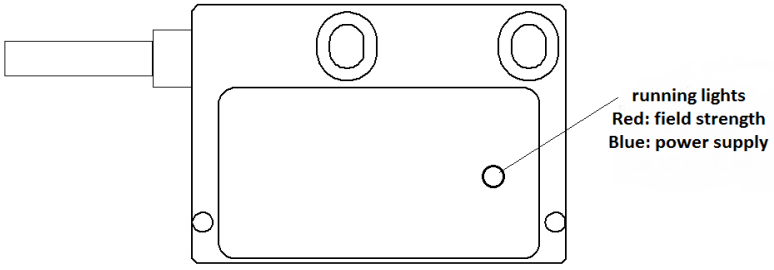


output signal and receiving circuit:

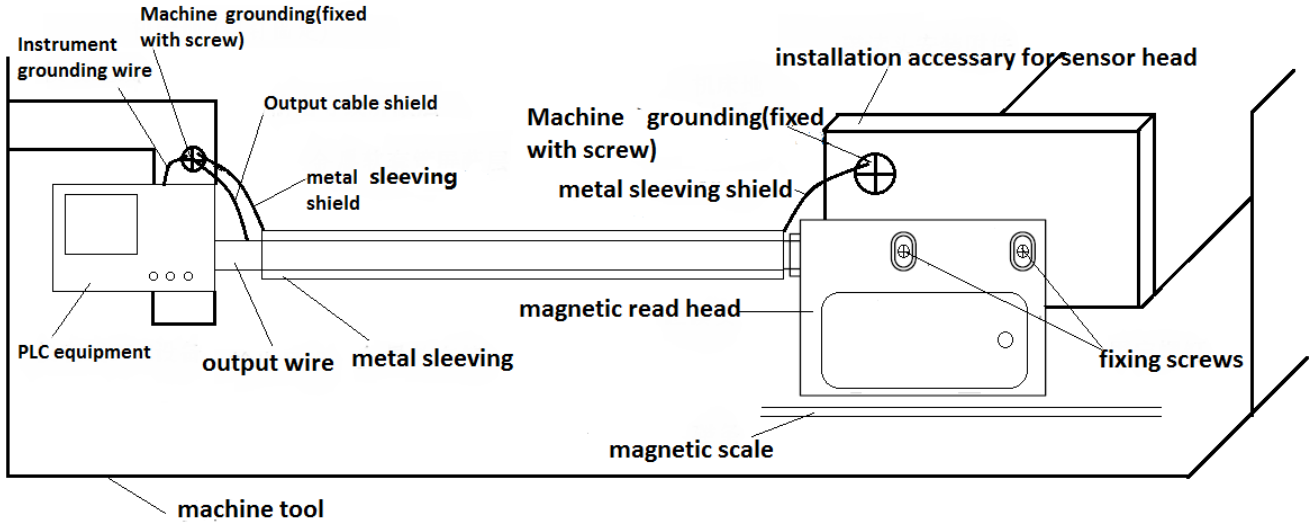
The type of output signal is difference signal of RS422. Suggested to use the 120Ω resistance to the receiving end to improve the anti-interference and reduce the influence of signal reflect.



2. Indicator light



3. Ground connection of shield wire

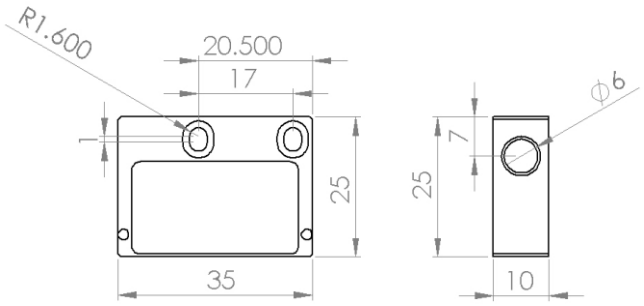


Attention： **Good grounding can ensure the normal operation of the magnetic read head. Must ask professional to install.**

1. Impedance of machine grounding must up to standard. Ground resistance: ≤4Ω

2. If the cable length of readhead is less than 2 m, additional metal sleeving is suggested. If the output wire length is more than 2m, it must has additional metal sleeving. In occasion with strong magnetic interference, additional metal sleeving is necessary no matter how long the output wire is.

■ Dimensions



■ Attention

1、 When installing the product, if the deviation is beyond its installation tolerances, the accuracy of the product might be influence and even won't work.

2、 It shouldn't be used in the occasion that out of the range of environmental requirement such as corrosion, acid-base and exposed to sunlight directly, or it might cause malfunction.

3、If it gets strong impact, it might give a wrong pulse signals.

4、Force acting on connecting line cannot over 30N.

5、When it near to high voltage lines or power line, to prevent product from malfunction, please use metal conduit to cover the cable.

6、Cable shield should be grounded well. When wire is covered with additional metal sleeving, both end of sleeving should be grounded well.

7、Blue indicator light representing the voltage is normal while red indicator light representing there is malfunction that not cause by its contact interval beyond the scope of tolerance, bad earth, external interference, etc.

velocity：Vmax(m/s)

Resolution(mm)	0.001	4.00	1.60	0.80	0.32	0.20	0.10	0.05	0.03	0.01
	0.005	20.00	8.00	4.00	1.60	1.00	0.50	0.25	0.13	0.06
	0.010	25.00	16.00	8.00	3.20	2.00	1.00	0.50	0.25	0.12
	0.025	25.00	25.00	20.00	8.00	5.00	2.50	1.25	0.63	0.30
	0.050	25.00	25.00	25.00	16.00	10.00	5.00	2.50	1.25	0.61
	0.100	25.00	25.00	25.00	25.00	20.00	10.00	5.00	2.50	1.21
pulse interval(μs)		0.20	0.50	1.00	2.50	4.00	8.00	16.00	32.00	66.00
counting frequency(kHz)		1250.00	500.00	250.00	100.00	62.50	31.25	15.63	7.81	3.79





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