

LS200/LH200 Magnetic Grating Encoder for Direct-Drive Systems

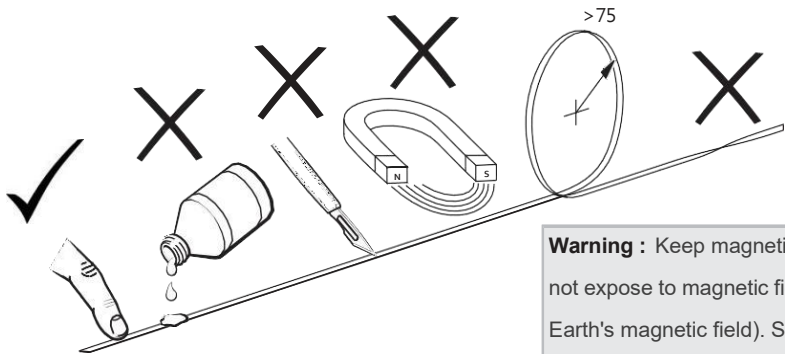
Incremental linear encoder specifically designed for linear motors, direct drive(DD) motors and linear actuators

Key Features

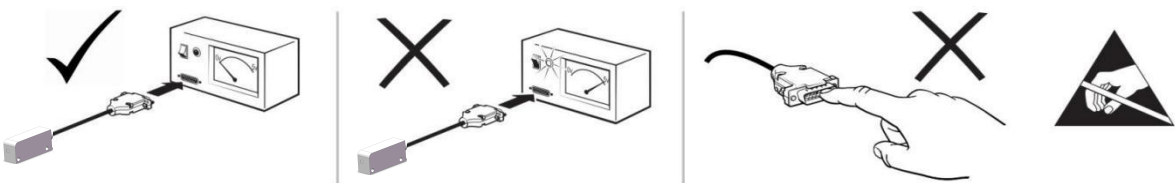
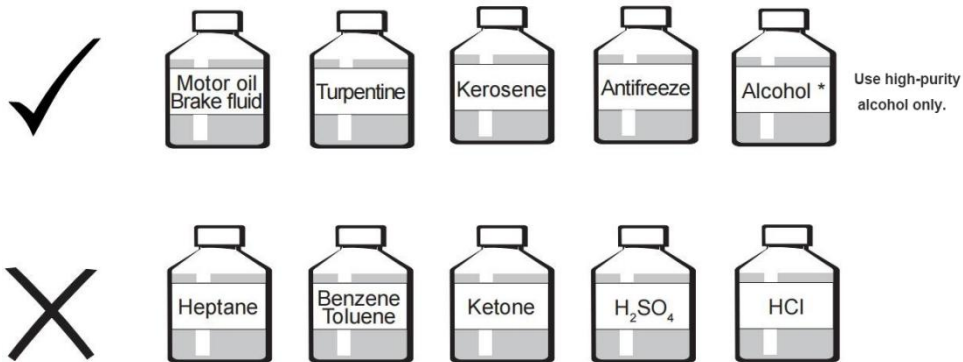
- **High-Speed Performance**
 - Maintains stable signal output at **5 m/s** velocity with **1 μ m resolution**
- **Industrial-Grade Interface**
 - RS422 differential output ($\pm A$, $\pm B$, $\pm Z$)
 - Quadrature signals (90° phase-shifted)
 - **Index pulse every 2 mm** (Z-phase)
- **Robust Mechanical Design**
 - **Non-contact sensing** with **0.8 mm max. airgap** (magnetic tape/ring compatible)
 - **IP68 sealed housing** (submersible up to 1m for 30 mins)
 - **20+ million flex cycles** (ultra-flexible drag chain cable)
- **Environmental Resilience**
 - Operating temperature: **-10°C to +80°C**
 - Resists shock (**50G**), vibration (**20-2000Hz**), and compressive force
- **User Convenience**
 - Integrated **LED fault indicator**
 - Tool-less installation with alignment guides



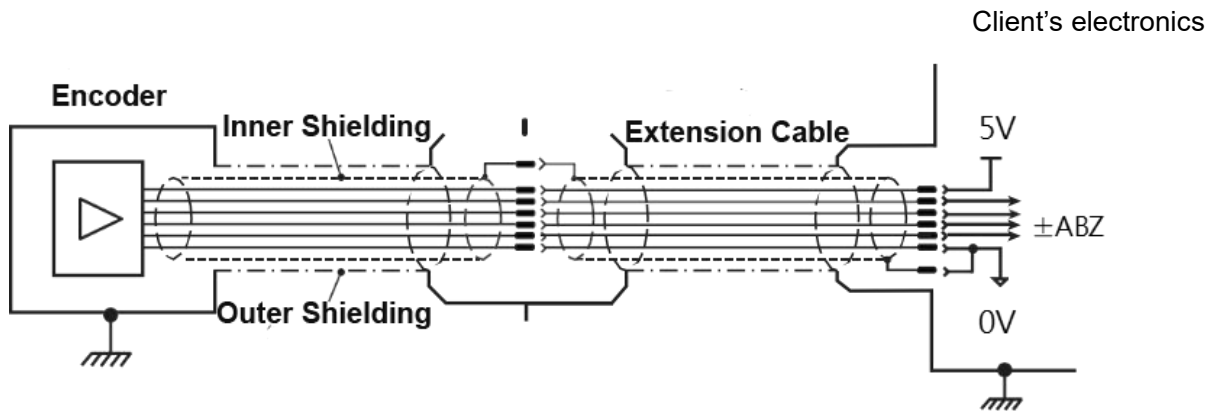
Storage and use



Warning : Keep magnetic scales away from strong magnets. Do not expose to magnetic fields stronger than 50 mT (about 10 times Earth's magnetic field). Stronger fields can permanently damage the scale's precision magnetic pattern, making measurements

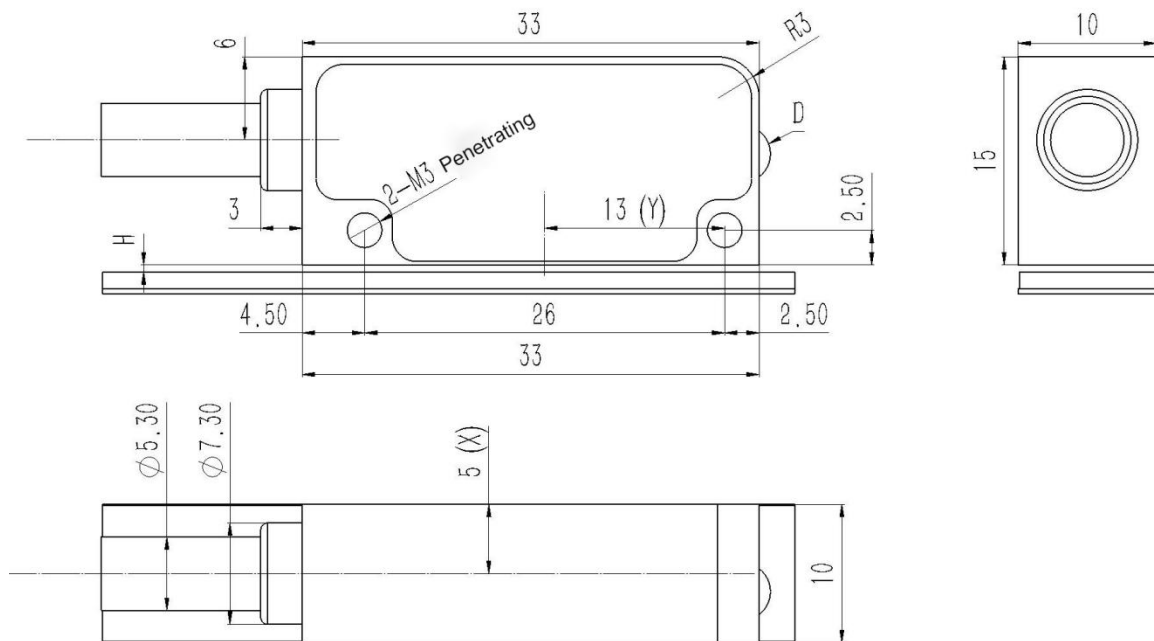


Shielding and connection



Dimensions

Units: mm

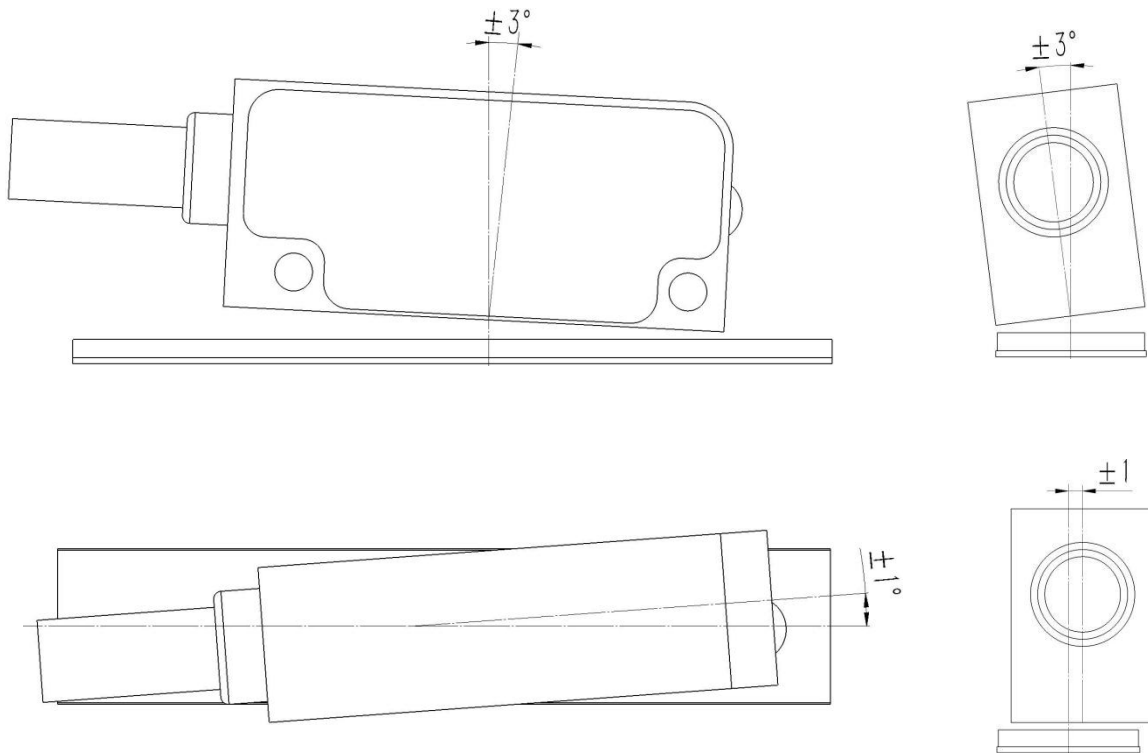


H: Sensing distance <1 mm, optimal <0.5 mm

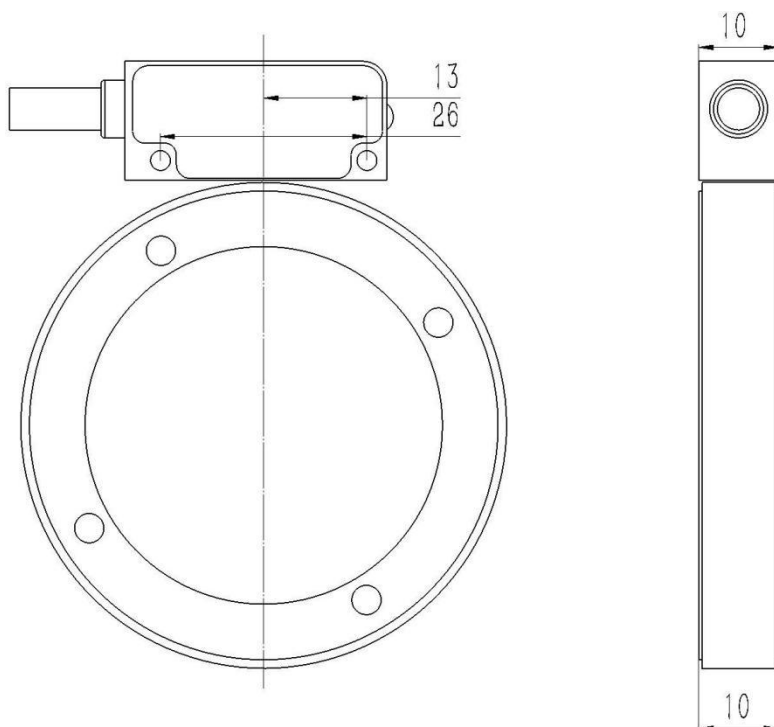
D: Indicator LED

X, Y: Sensing center point

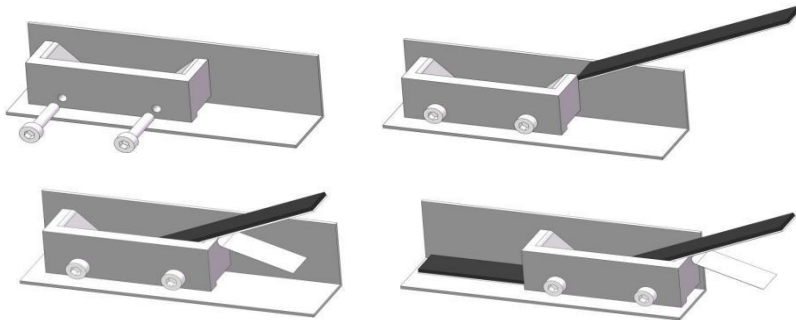
Scale Placement tolerance



Magnetic encoder disk Installation Reference (Units : mm)



Scale installation



✦Status Indicator Light

Status	
Blue LED solid (steady on)	System functioning normally, valid data output
Red LED blinking	Excessive sensing gap, magnetic scale demagnetization damage.
Red LEDs solid (steady on)	Encoder severely damaged
LEDs off	Encoder severely damaged, or check circuit continuity

✦Technical Specifications

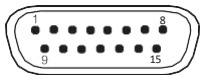
Description	Parameter	Remark
Working Voltage	5V	±5%
Operating Current	60mA Max	25℃ Room Temperature
Resolution	1 um (max)	Default 1 um
Output Signal	±ABZ	Industrial RS422 Standard
Positioning Accuracy	≤50um	Laser interferometer calibrated(Sensing gap: 0.20mm)
Repeatability	±1um	Laser interferometer calibrated(Sensing gap: 0.20mm)
Max Measuring Length	50M	Depending on scale
Maximum Speed	5m/s	
Max Cable Length	30M	Laboratory measured voltage decay to 4.75V DC
Cable outlet method	Direct outlet	optional (DB9/DB15)
Sensor Material	Aluminum	CNC Precision Engraving
Sensing Distance	< 0.8mm	Optimal accuracy achieved at 0.2mm gap
Overall Dimensions	33*15*10MM	
Mounting Hole Spacing	26mm	
Matched Scale	MS20	
Cable Length	Default 0.5 meters	Customizable
Operating Temperature	-5 ... 70℃	
Storage Temperature	-20 ... 105℃	
Protection Rating	IP67	

✧Electrical Connection

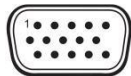
Cable Specification

Cable Type	Torsion-resistant, drag chain compatible, shielded
Number of Wires	8
Outer Diameter	5.3mm ±0.15 mm
Jacket Material	TPU
Wire specs	0.1 mm ² ,28 AWG, 0.38 Ω/m
Shielding Effectiveness	98%
Durability	30 million cycles at 37 mm bending radius
Weight	34 g/m
Bending Radius(Inner)	Dynamic: 25 mm / Static: 10 mm

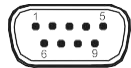
Double-row DB15
male connector



Three-row DB15
male connector



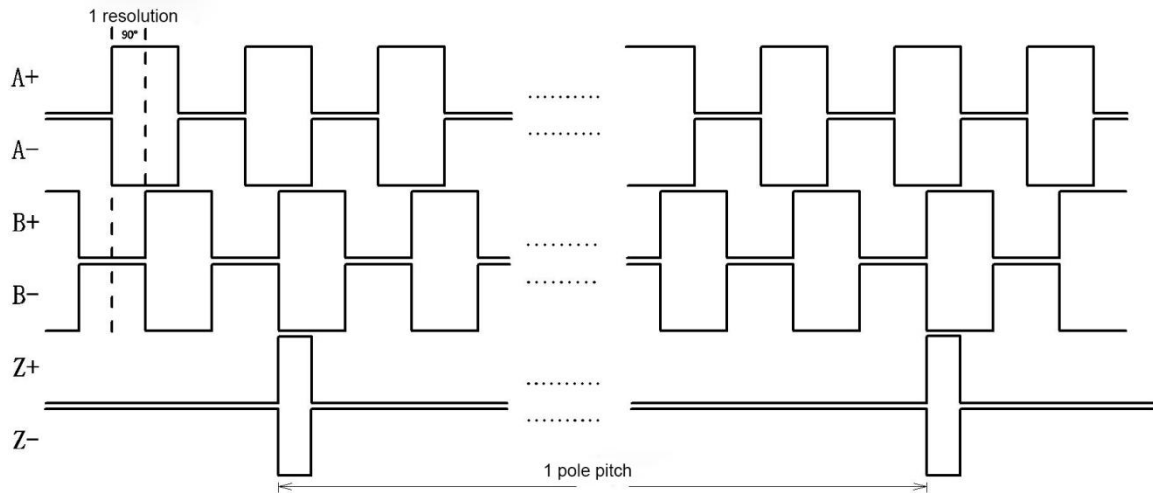
Double-row DB9
male connector



Pin	Wire color	Signal
1		
2	black	0V
3		
4	brown	Z-
5	blue	B-
6	purple	A-
7	red	5V
8		
9		
10		
11		
12	yellow	Z+
13	white	B+
14	green	A+
15		
Shell		shielding

Pin	Wire color	Signal
1		
2	yellow	Z+
3	white	B+
4	green	A+
5		5V
6	brown	Z-
7	blue	B-
8	purple	A-
9	black	0V
Shell		shielding

✧Output specification



Model selection

Read head: LS 200 -- 001 -- 5 -- 8 -- 0.5 -- NC

Outlet Interface
 NC: Bare board
 DB9: DB9 plug
 DB15: DB15 double row
 DB15S: DB15 three row
 Cable length
 0.5: 0.5 m (default)
 1: 1 m
 1.5: 1.5 m
 10: 10m
 Output wires
 8: 8 wires $\pm$ ABZ
 6: 6 wires $\pm$ ABZ
 5: 5 wires ABZ
 4: 4 wires AB

Series No. _____

Scale pitch _____

200: 2mm pitch

100: 1mm pitch

Resolution _____

0005: 0.5 μ m

001: 1 μ m

002: 2 μ m

025: 2.5 μ m

005: 5 μ m

Input voltage _____

5: 5 v

Scale model :

$\frac{MS}{A} \frac{20}{B} - \frac{10}{C} - \frac{3000}{D}$

A: Series No.

MS: Incremental Scale

B: Scale pitch

20: 2mm pole pitch

10: 1mm pole pitch

C: Scale type

10: 10mm width

D: Scale total length

10: 10mm

200: 200mm

3000: 3000mm