多電工業股份有限公司
APHA AUTOMATE CO., LTD.
TEL:886-4-25620278
辦公室FAX:886-4-25611109
廠務室FAX:886-4-25623368
E-mail:service@apha.com.tw
https://www.apha.com.tw

Magnetic Induction Sensor (HYA02) User Manual

Product Name: Magnetic Induction Sensor

Model Number: HYA02

Product Overview

The magnetic induction sensor is a device used to detect magnetic field changes. It is widely used in security systems, automation control, various hydraulic equipment, and electronic devices. This product contains a basic magnetic field and detects external media changes through it, enabling the detection of variations in quantity, position, angle, or length.

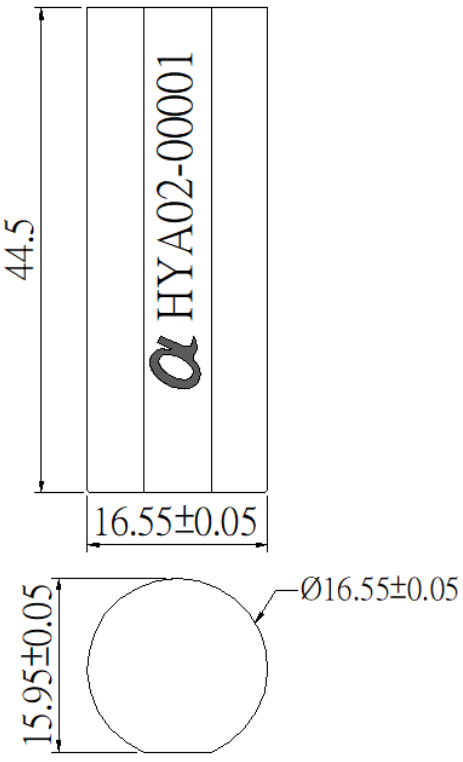
Features

High Sensitivity: Capable of detecting weak magnetic field changes.

Fast Response: Responds instantly to changes in the magnetic field, accurately detecting movement at a relative speed of 15 m/s.
Good Stability: Housed in engineering plastic; stable operation in various environments through magnetic field sensing.

Specifications

Parameter	Value
Operating Voltage	DC 12V
Operating Current	24mA
Linear Speed	15 m/s
Operating Temperature	-10℃ ~ 85℃
Output Waveform	50% quadrature signal (bi-directional 90° differential square wave)
Maximum Gap	0.6mm
Thread Pitch	2mm
Resolution	0.5mm
Gear Module	0.5 ~ 2mm
Wiring Information (Cable Color Definitions)	Red: DC Power Supply (+) Black: DC Ground (−) White: Signal Output – Phase A Green: Signal Output – Phase B



TEL:886-4-25620278
辦公室FAX:886-4-25611109
廠務室FAX:886-4-25623368
E-mail:service@apha.com.tw
https://www.apha.com.tw

Installation Instructions

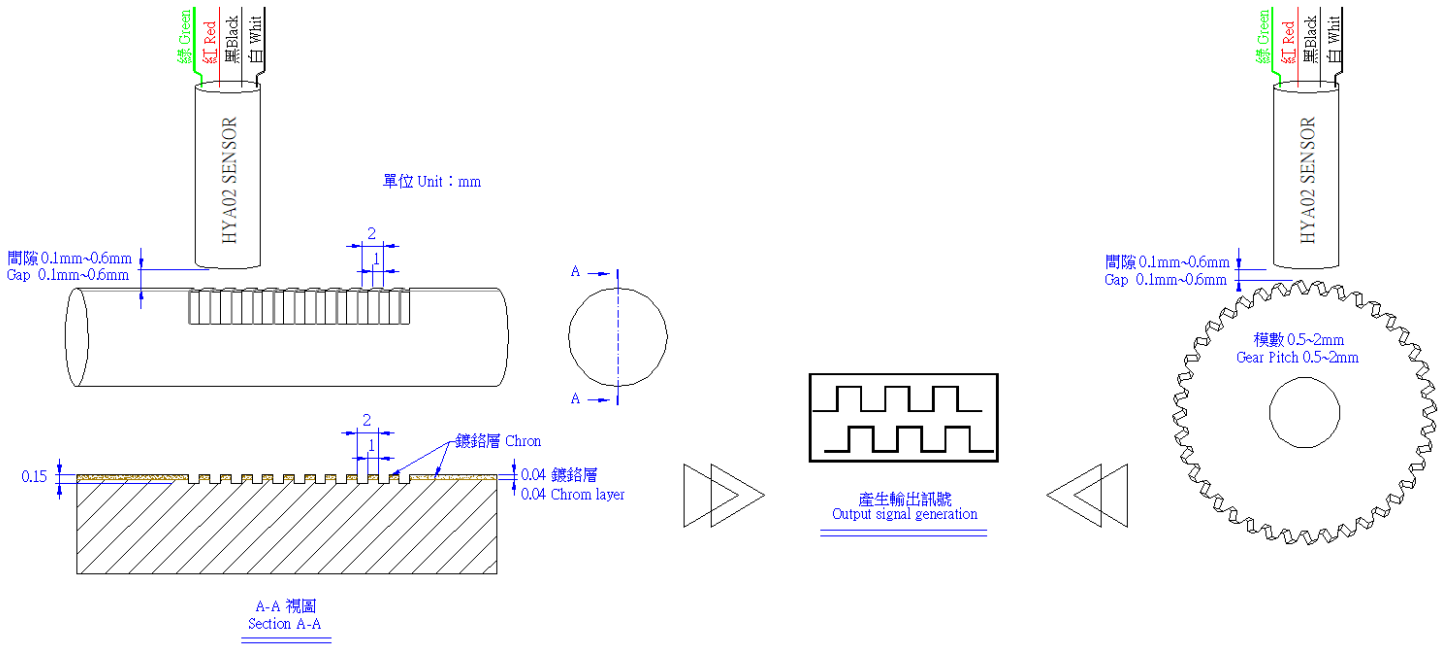
Fixing Method: Secure the product using flat surface pressure. Avoid tightening with pointed tips or screws directly.

Installation Distance: Maintain a gap of 0.1–0.6 mm between the sensing surface and the measured surface (as shown in the diagram). Avoid contact or friction.

Installation Direction: The flat surface of the product must be perpendicular to the movement direction of the thread or gear (see diagram).

Installation Location: Choose a suitable location to ensure accurate detection of the target motion and avoid interference.

Power Connection: Connect the sensor's power wires as per the manual. Ensure DC voltage is within the allowable range.



Usage Instructions

Once installed and powered on, the sensor enters working mode. The product contains a fixed magnetic field. When the detected object moves relative to the sensor along the same axis — whether the object or the sensor moves — the sensor detects magnetic height differences. Through its internal precise circuits and calculations, it outputs a signal: a 50% quadrature signal (i.e., a bi-directional 90° differential digital square wave).

The processed object must meet the requirements shown in the diagram:
The height difference should be at least 0.15 mm, with 1 mm width for both high and low sections.The target object should have a height difference of at least 0.15 mm. Its surface must be smooth and may be coated with a non-magnetic material, such as chrome.

The default resolution is 2 mm, but the signal can be processed to achieve 1 mm or 0.5 mm. Our

company also provides interface boards for post-processing and can customize various interfaces or control units.

Precautions

- Keep the sensor away from sources of strong electromagnetic interference or other magnetic fields.
- Regularly check the sensor's working condition to ensure proper function.
- Follow safety procedures during installation and maintenance.

Troubleshooting

- **No Signal:** Check if the power supply is normal, if the power and signal wires are connected correctly, and if the direction and spacing meet specifications.
- **Unstable Signal:** Check the installation position and whether the sensor and object are moving along the same axis. Ensure there are no sources of interference.

Contact Information

If you encounter any issues, please contact our customer service:

Company: Duo Dian Industrial Co., Ltd.
Address: No.173, Xitou Rd., Shengang Dist., Taichung City 429, Taiwan (R.O.C.)
Phone: +886-4-25620278
Website: http://www.apha.com.tw
Email: service@apha.com.tw