

Laser Cross Beam sensor

Ultrahigh Precision & Frequency Simultaneous Correction of 3 Axes

0.01mm Repeatability

2kHz Measurement Frequency



Semiconductor Industry



CNC Industry



Dispenser Positioning



High repeatability and reliability
 Repeatability: 0.01mm



Backlight compensation
 It can realize automatic backlight compensation and resist the interference of intensive light



Simultaneous correction of 3 axes
 Three coordinates (X, Y, and Z) can be calibrated simultaneously



Integrated design, compact structure
 All signal communications are integrated into one interface, which is easy to wire and install



Extremely short response time
 Switching frequency: 2kHz



IP67 protection degree

© Product Description

- HPS-LCB02 is a high-precision optical calibration sensor for industrial positioning. It can achieve absolute position correction and zero reset along two dimensions in the sensor plane, and has good impact resistance and durability.

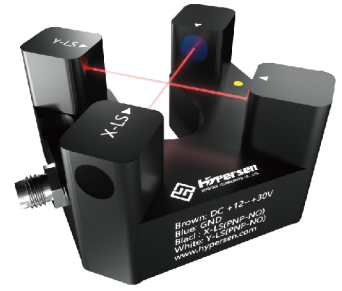
It is widely used in scenarios such as dispensing needle positioning, CNC tool positioning, etc.

Laser Cross Beam sensor



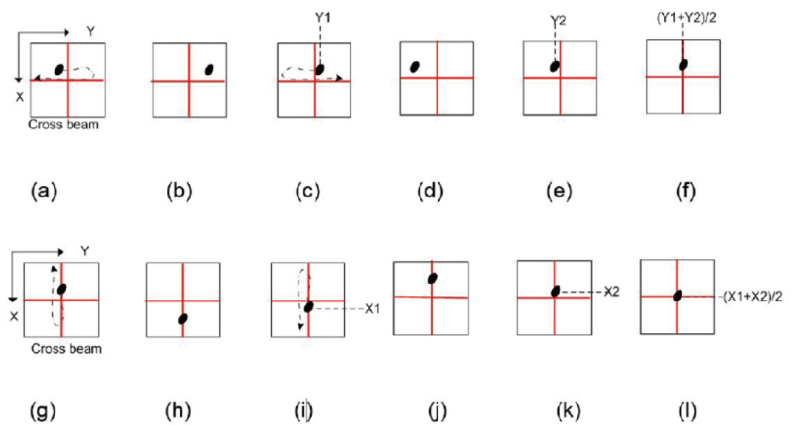

Laser Cross Beam Sensor

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Principle Introduction

The core of the automatic calibration of the laser cross beam sensor (HPS-LCB02) is the center search algorithm. A two-dimensional Cartesian coordinate system is formed by two opposite beam paths. Take dispenser positioning as an example, the robot guides the dispensing needle to search around the center of the sensor, and then move it from right to left along the Y-axis. The position when the needle first touches the laser beam is recorded as Y1, and the position when it just leaves the beam is recorded as Y2. Therefore, the center position of the needle in the Y direction is the coordinate of $(Y1+Y2)/2$. In the same way, the center position of the X axis can be found as shown in the figure below, which is $(X1+X2)/2$. After locating the needle's center point in the X and Y directions, lift it up and find the zero point along Z axis, which is the position where you find two laser beams disappear or appear at the same time. Through the above steps, the zero point of the object can be identified.





Excellence Beyond Precision

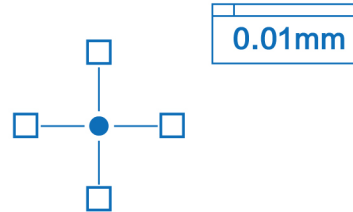
Excellence Beyond Precision

Excellent performance to deal with different scenarios

Product Advantages

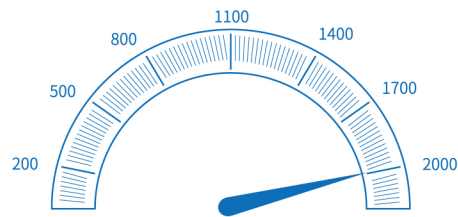
0.01mm repeatability

Thanks to its ultra-small light spot, the repeatability can reach 0.01mm



Extremely short response time

2kHz measurement frequency



Integrated design/easy wiring/compact structure

- Three coordinates (X, Y, and Z) of the target can be calibrated simultaneously;
- No need to calibrate after the product is installed;
- All signal communications are integrated into one interface



Backlight compensation algorithm/strong anti-light interference ability

- The built-in backlight compensation algorithm can resist strong light interference and improve its reliability.
- Protection degree: IP67



Laser Cross Beam Sensor



3D Optical Profilometer

3D Line Confocal Sensor

Chromatic Confocal Sensor

High Speed Industrial Camera

6-Axis Force Torque Sensor

Laser Cross Beam Sensor

3D Solid-state LiDAR

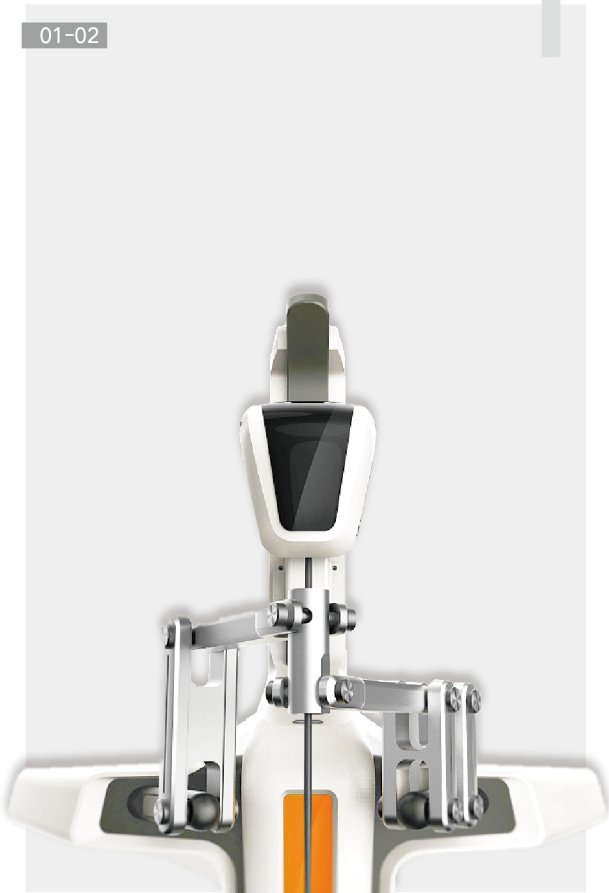
ToF Ranging Sensor

Excellent performance to deal with different scenarios

Applications

Automotive/logistics industry

01-02



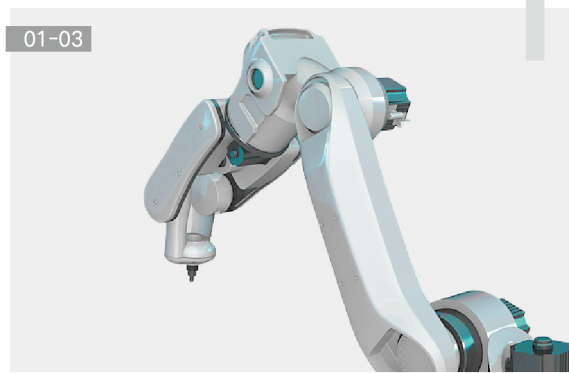
• Industrial robot positioning

01-01



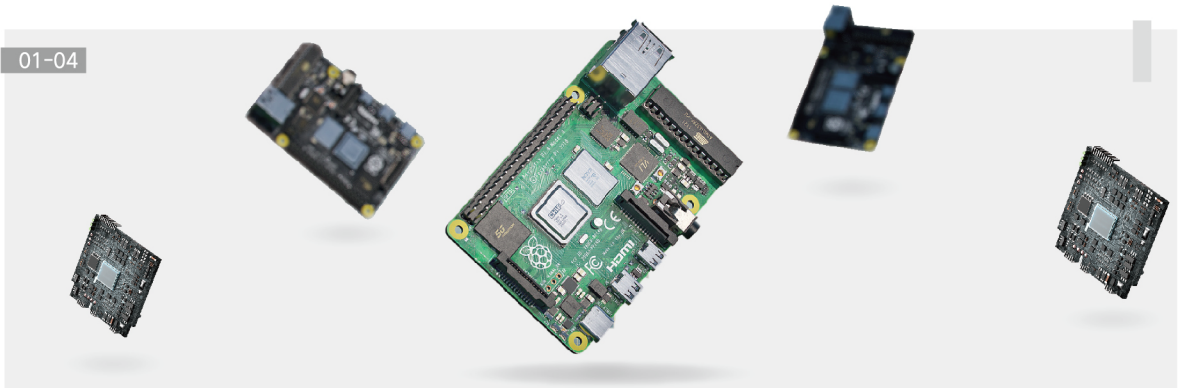
• Dispensing positioning

01-03




• CNC tool positioning

01-04



• Precision assembly

Technical Parameters

Model	 HPS-LCB02
Power supply voltage	DC+12~+30 V
Current consumption	Max. 30 mA * 1
Output	2x PNP-NO/2x NPN-NO
Output status indication	Yellow led
Operating temperature	-20 ~ 75°C
Laser type	650nm
Laser class	Class II
Switching frequency	Max. 2000Hz
Resolution	0.2mm
Repeatability	< 0.01mm
Housing material	Aluminium, black anodized
Interface	M8 aviation plug
Dimensions	60 (L)*60 (W)*34 mm (H), without interface
Cable	M8 elbow connector; diameter: 4.6 mm; 4-pin
Cable length	2m

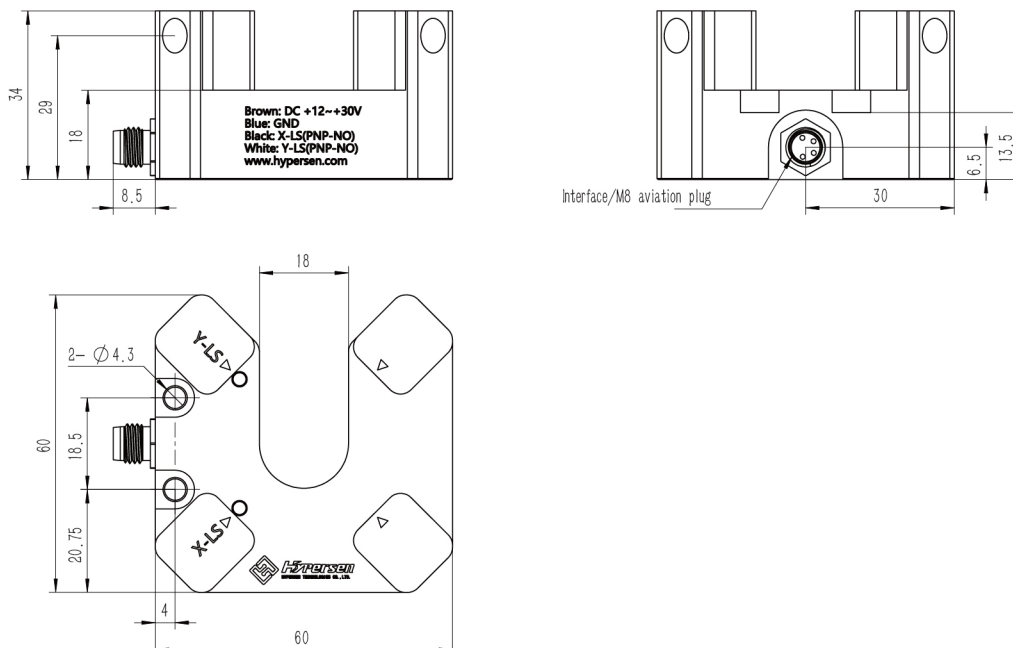
Note: This value refers to the current value when the dual channels are triggered under 12V power supply state (no load condition).

Laser Cross Beam Sensor

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Dimensions

HPS-LCB02 Dimensional drawing



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