PL-02 SERIES LASER PROFILE SENSOR

Accurate Measurement

Rapid Application

POMEAS
Vision Technology

Guangdong Pomeas Vision Technology Co., Ltd.

PL-02 SERIES LASER PROFILE SENSOR

Realize the measurement of any contour size of the object, such as height difference, width, angle, radius, etc. It can also realize the functions of defect detection, appearance size scanning, surface feature tracking, etc.
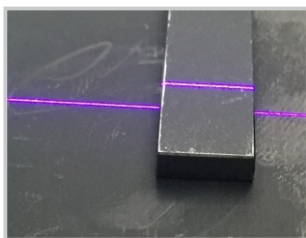
Advantages: fast speed, high precision, non-contact, easy installation, simultaneous measurement of multiple dimensions on a contour.

This product has passed ISO9001 certification, European CE certification, RoHS certification, FDA certification, Japan JQA certification.
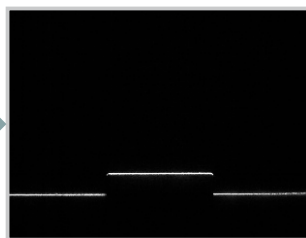
Measuring Principle

The laser profile sensor adopts the principle of laser triangular reflection: the laser beam is enlarged to form a laser line and projected on the surface of the object to be measured, the reflected light passes through the high-quality optical system and is projected onto the imaging matrix. After calculation, the distance from the sensor to the measured surface (Z axis) and position information along the laser line (X axis) are obtained. Move the measured object or the profiler probe to get a set of three-dimensional measurement values.
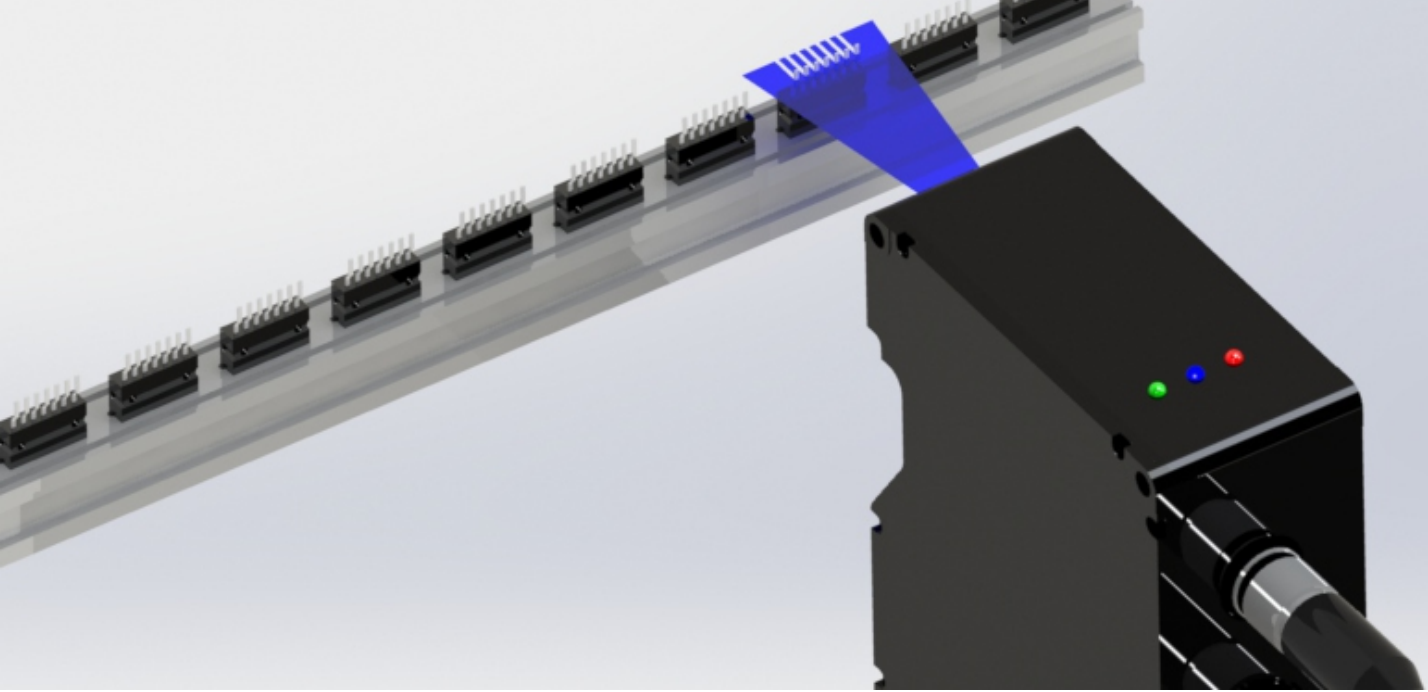
| Project the laser line to the surface of the measured object | The diffuse reflection of the laser line is imaged on the photosensitive matrix (pixels) | X/Z axis measurement results obtained after calibration |

Advanced technology

- Up to 1280 measuring points per scan line;
- The measurement repeatability is up to 0.2 μm;
- Can position correction to eliminate tilt error;
- Can detect glass and highly reflective materials;
- Gigabit Ethernet data transmission;
- 405nm blue laser;
- Ip67 protection level;

Wide application fields

- On-line measurement of spacing, contour, steps, angles, etc.
- Defect detection, flatness detection;
- Contour tracking, dimension measurement, 3d scanning;
- Contour transmission or measurement data output;
- Rugged and durable, suitable for production ; line and laboratory use;
- Suitable for robotic applications;
- Multiple scanning applications;
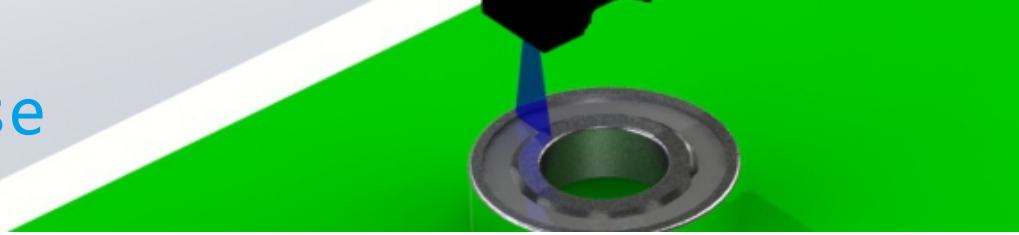- Suitable for integrators and end users;

Software

- CONVERT function development kit;
- MTOOL tool development kit;
- The software development kit reference example program make it is more convenient to use;
- Applicable to C, C++ library files;
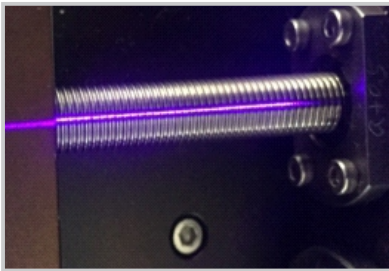- Free software upgrades;

PORT

- Gigabit Ethernet (GigE Vision);
- Trigger and encoder input
- Measurement start and stop command input
- Laser remote interlock input
- Multi-channel analog value and switch value output unit (optional)
- Output measurement data via Modbus (optional)
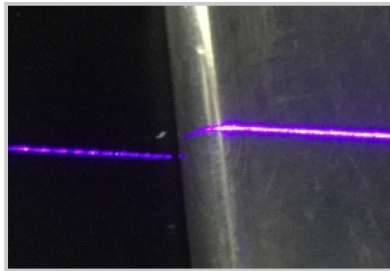- Realize direct communication with PLC (optional)

Application Case

In which industries can laser profile sensors be used?

1、 Automobile industry, such as: automobile assembly position, gap detection, automobile handle surface

 detection, tire detection, complex contour size detection, etc.

2、 Mobile phone industry, such as: mobile phone panel assembly and alignment, mobile phone component size

 inspection, mobile phone screen thickness inspection, mobile phone display curved surface measurement, etc.

3、 Semiconductor industry, such as: PCB board inspection, electronic component height, width, and angle

 inspection, IC pin spacing and distortion measurement, etc.

4. Hardware industry, such as gear clamp alignment detection, gear pitch detection, bearing height detection, etc.
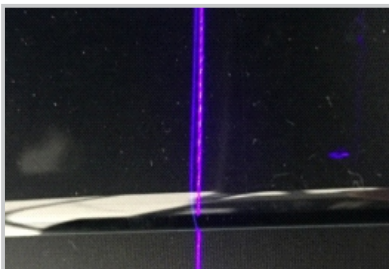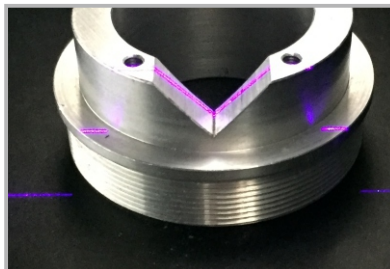
Lead screw tooth
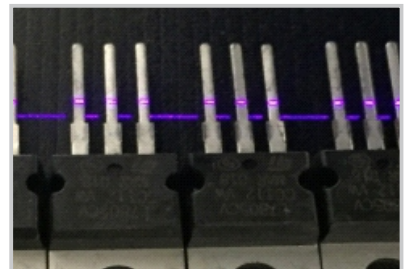spacing measurement

Surface curvature measurement

Complex contour size measurement

Curved glass measurement

Height, width, angle measurement

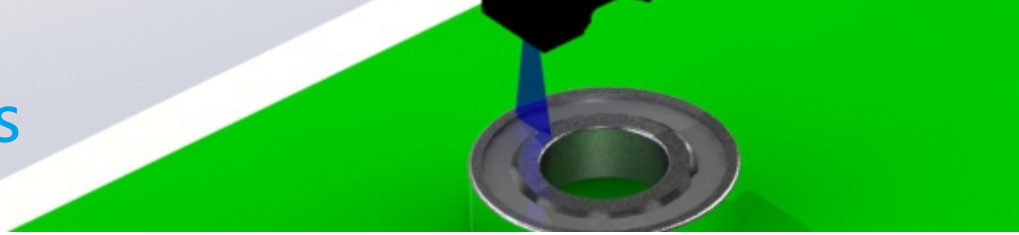Electronic device pin spacing
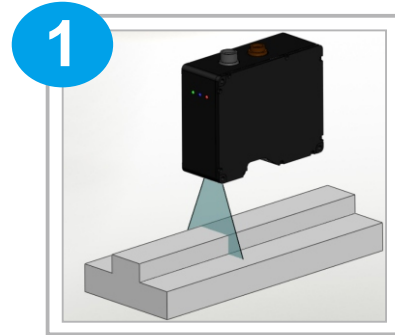and bending measurement

Assembly size measurement

Hardware mold measurement
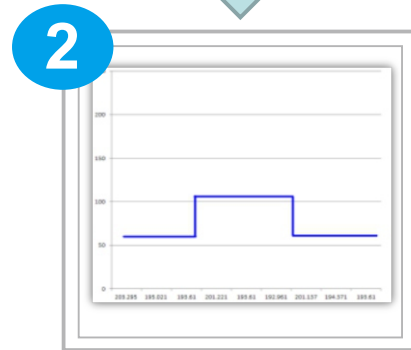
Use Instructions

Step 1: Install the sensor

After the user takes out the laser sensor from the packing box, it can be installed immediately according to the instructions.
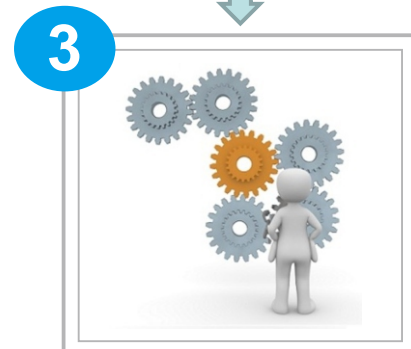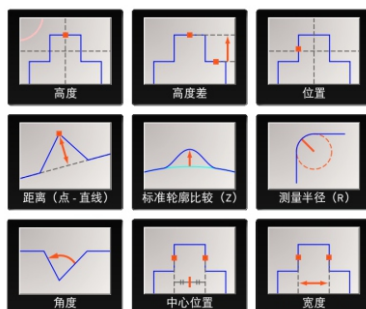
Step 2: Call the collected data function

Use the attached software development kit for quick application and call the calibrated data function.

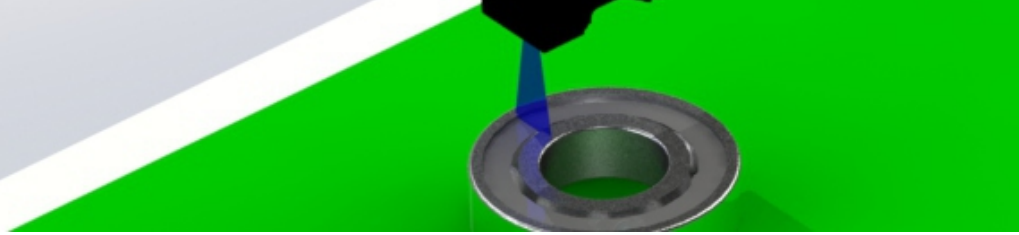## Step 3: Call the tool library function

When measuring, you can directly call the packaged tools for measurement. The optional measurement tools include height, Height difference, position, distance, contour, radius, angle, center position, width, etc.
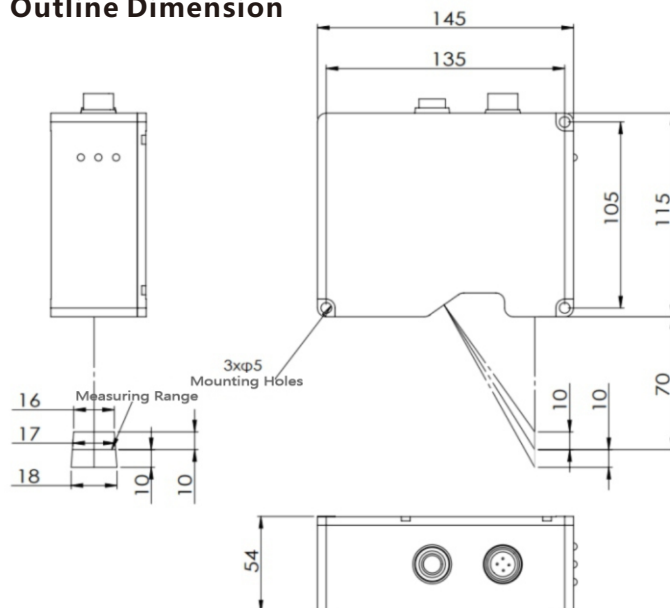
Step 4: Output measurement data

According to demand, output measurement data

Performance Parameter

Model			PL-02
Reference Distance			70mm
Measuring Range		Z axis	± 10mm
	X axis width	Near	16mm
		Reference distance	17mm
		Far	18mm
Repeated Accuracy		Z axis height	0.2um
		X axis width	10um
Linear Accuracy Z Axis (Height)			± 0.1% F.S.
Contour Data Interval X Axis (Width)			20um
X-Axis Pixels			1280
Sampling Frequency (Depending On Measurement Mode)			10Hz —— 200 Hz
Laser Light Source			Blue semiconductor laser
Laser Wavelength			405nm
Laser Class			class 2 laser product
Laser Line Size			About 48mm×50 µm
Laser Power			9mW
Sensor Indicator			3 Status indication
Shell Protection Level			IP67
Power Voltage			24VDC
Power Current			0.5A
Environment Temperature			0-45 °C
Environment Relative Humidity			15% -95%, no condensation
Shell Material			Aluminum alloy
Quality			About 600g

Outline Dimension

Standard Configuration

Laser sensor

Software development kits and routines

Network cable (length: 3 m)

Control cable (length 3 m)

Optional Accessories

Air cooling Protection Kit

Lens air curtain protection kit

Sensor mounting plate

Sensor holder

Network cable (length 5 meters, 10 meters)

Control cable (length 5 meters, 10 meters)