

NIR Coating Thickness Gauge

GY1000PL

Features

- Non-contact, non-destructive, real-time online testing system.
- Replaceable halogen tungsten lamp with high luminous efficiency.
- PBS infrared detector for improved temperature stability.
- 4-wavelength, 8-beam technology for accuracy and stability.
- High-speed brushless motor for precise sampling.
- Dynamic dark current correction and digital filtering reduce noise.
- HD touchscreen with 30-day data storage.
- Modular design: one controller for up to 4 probes.
- Industrial-grade, dustproof, and waterproof.
- Easy maintenance.

Application

- Fabric, coating, and biaxial stretching production lines.
- BOPP, BOPET, BOPS, BOPA, etc.
- CPP cast film and extrusion sheet production lines.
- PVC calendering and coating production lines.
- Fiber and steel cord calendering production line.
- Non-woven fabric production line.
- Float glass production line.
- Glass fiber and paper production lines.

Description

The GY1000PL is a real-time, non-contact coating thickness measurement system using near-infrared spectroscopy.

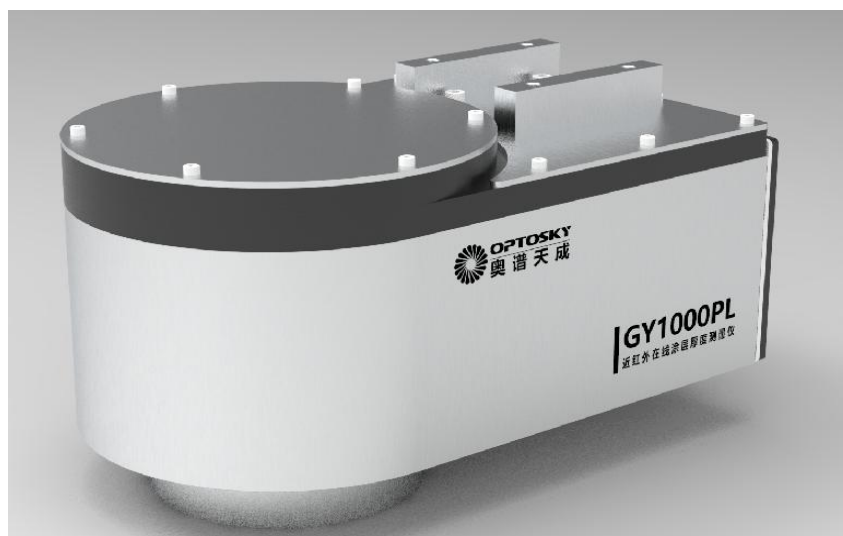
It features an optimized optical system and advanced signal processing algorithms, combining Optosky's years of expertise in spectral analysis to provide a cutting-edge online coating thickness solution.

The GY1000PL includes a detection probe, display, power supply, and cables. The probe performs photoelectric detection and signal processing, while the display shows measurement results and provides a user interface.

Designed for industrial use, it offers data storage, alert functions, and networking capabilities with other industrial equipment to enhance production intelligence.

Examples:

- Paper substrates: Adhesive coating, clay/latex coating, strength layer coating, microcapsule coating, extruded plastic coating, plastic emulsion coating, wax coating, biaxial stretching production line.
- Metal substrates: Adhesive coating, plastic coating, wax coating.
- Coating substrates: Water-based adhesive coating, water-based emulsion coating.





1. Application Methods

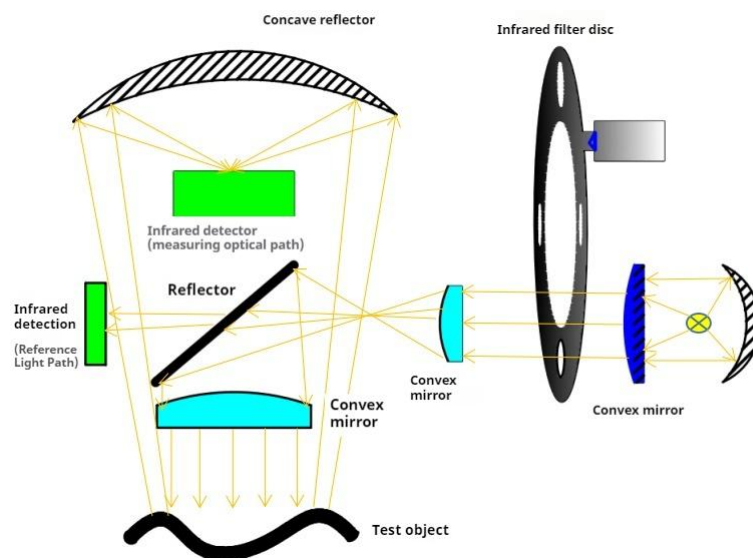


The GY1000PL probe is directly mounted above the test object using a scanning frame, allowing precise detection of coating thickness to ensure it meets standards and is uniform. This helps reduce waste from defective products, improve product quality, lower raw material consumption, and significantly increase production efficiency. The GY1000PL display can output control signals to a PLC for integration with other factory devices.

2. Principle

Specific wavelengths of near-infrared light are selectively absorbed by C-H bonds in organic materials or H-O bonds in water molecules, with absorption ability positively correlated to the number of bonds in the material. Near-infrared thickness gauges utilize this principle to measure material density (thickness) or moisture content by detecting the amount of near-infrared light absorbed.

Optosky, addressing industry pain points and customer needs, has introduced the GY1000PL as the first domestic model to feature a dual-cooled imported lead sulfide detector and 4-wavelength 8-beam technology. Combining years of Optosky's expertise in optoelectronics, the GY1000PL aims to be a leading near-infrared online film thickness gauge in China. The optical path principle of the GY1000PL is shown in the diagram below.

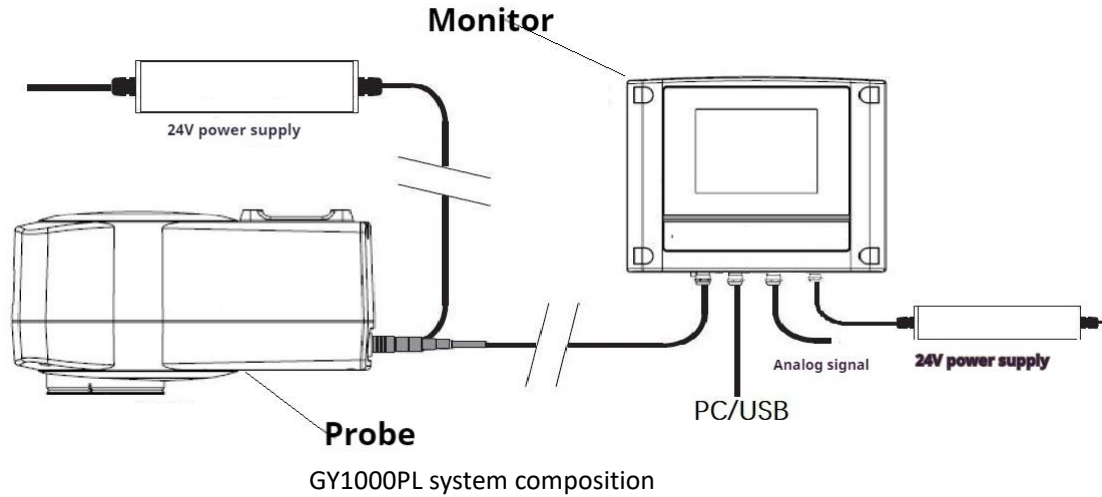


GY1000PL optical path diagram

The GY1000PL features high measurement accuracy and minimal sensitivity to variations in probe-to-material distance and angle. It excels at measuring transparent or semi-transparent organic coatings and is ideal for assessing moisture content in materials.

The GY1000PL offers integrated measurement of both density/thickness and moisture. With a single system, it enables simultaneous online measurement of density (thickness) and moisture, delivering cost-effective, high-precision, and efficient monitoring.

3. System Configuration



4. Parameter

Detection probe		
1	Measurement indicators	Thickness/surface density (gram weight)
2	Measurement mode	Fixed-point measurement, mobile measurement
3	Measurement range	10μm~1000μm
4	Light source	12V/20W, life not less than 5000H
5	Measurement wavelength	4 wavelengths, 8 beams
6	Detector	Infrared detector (PbS)
7	Repeat accuracy	±1~2μm
8	Test speed	25ms
9	Measurement distance	250±100mm
10	Detection area	Diameter 50mm
11	Motor speed	3750RPM/M
12	Lens window	Highly transparent quartz glass
13	Working temperature and humidity	Temperature 0~50°C Humidity: 40%-60%
14	Probe cable	3M shielded twisted pair, length can be customized
15	External interface	DC power socket
16	Input power	DC 24V/5A
17	Protection level	IP65
18	Material	Aluminum alloy
19	Installation method	Hoisting and fixing
20	Dimensions	348mm*200mm*197.5mm
21	Weight	About 15KG
Monitor		
1	Touch screen	10-inch capacitive touch screen
2	Operating system	Windows 7

3	Display content	Water content, status, etc.
4	Memory	4G, external storage space can be expanded
5	Probe cable	3M shielded twisted pair, support customization
6	External interface	DC power socket, network port, USB*2
7	Physical button	Controller power switch
8	Protection level	/
9	Power input	DC24V/1A
10	Material	PC
11	Installation method	Lifting and fixing
Packing list		
Standard configuration: 1 probe, 1 display, 1 cable, 2 sets of power adapter and power cord		
Optional: Air cleaning window (with air holes)		

5. Software Features

- (1) Next-generation online measurement software system with enhanced functionality and scientific algorithms.
- (2) Online thickness measurement and moisture measurement.
- (3) Capable of scanning measurement, point measurement, and cyclic point measurement.
- (4) Real-time display of various measurement curves such as single/multiple profile lines, partition lines, and trend lines, with multiple quality data displays.
- (5) Massive data storage based on a database, with historical data query and traceability, and historical curve replay.
- (6) Real-time process monitoring with five-line quality control, multiple warning and alarm levels, and out-of-limit marking.
- (7) Remote monitoring and data management, with remote multi-machine management capabilities.