

# Non-Contact Infrared Online Moisture Analyzer GY1000

## Feature

- Non-contact, non-destructive, real-time dynamic online test system;
- Replaceable halogen tungsten light source with long life, higher luminous efficiency;
- Adopt dual-cooled PBS infrared detector to improve temperature stability;
- 4 wavelengths and 8 beams technology ensures more accurate and stable results;
- High-speed brushless motor ensures more accurate signal sampling results;
- Dynamic dark current correction, digital filtering to eliminate interference and reduce thermal noise and other external influences;
- High-definition touch screen displays real-time measurement data, which can store measurement data within 30 days;
- Split design, one controller can link 4 probes;
- Sturdy industrial design, dust-proof and water-repellent, suitable for various industrial sites;
- Simple and convenient maintenance;

## Application

- Textile industry: fabrics, yarns, garments, wallpaper, etc.
- Food industry, food processing, tea, ceramic industry, glass industry, cement industry, pharmaceutical industry, chemical industry, wood industry, paper industry, etc.
- Steel industry: sintering mixture, pellet raw material, before and after drying, pelletizing, etc.
- Non-ferrous metals: bauxite, copper concentrate, mineral sand, nickel ore, gold, silver, lead and zinc concentrate, alumina and non-ferrous smelting, etc.
- Tobacco industry: cigarette packs, tobacco stems, tobacco leaves, shredded tobacco, re-drying, tobacco sticks, etc.

## Description

GY1000 is a real-time online measurement system for measuring the moisture content of substances developed by using the absorption principle of moisture in the near-infrared band.

GY1000 uses the optimized optical path system and perfect signal processing technology and algorithm, combined with the spectral analysis technology accumulated by Optoelectronics over the years, to provide users with a new generation of leading online moisture measurement solutions.

The composition of GY1000 mainly includes detection probe, display, supporting power supply and cables. The probe is used as a photoelectric detection and signal processing system, and the display shows the measurement results and provides a human-computer interaction interface. In order to meet the needs of industrial production, GY1000 provides data storage and warning functions, and supports network linkage with other industrial equipment, further improving the intelligence of industrial production.



## 1. System Application:



Figure 1 Application of GY1000 Online Infrared Moisture Analyzer

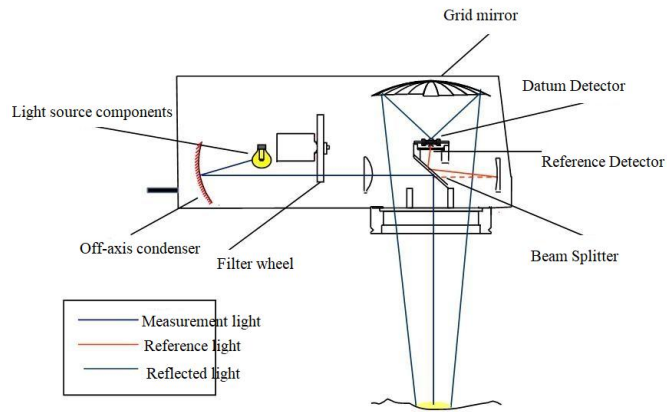
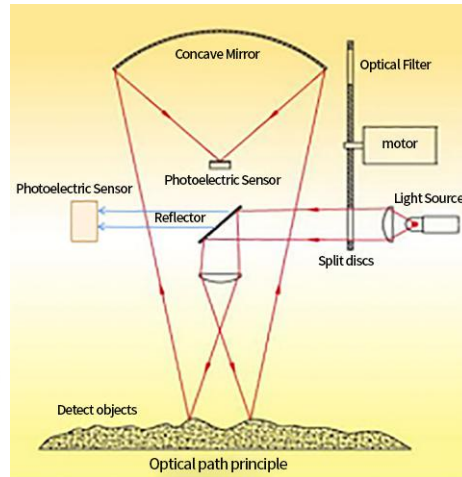
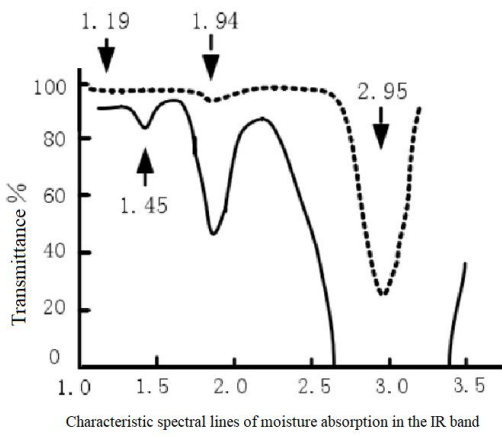
GY1000 is installed 20-40cm above the object to be measured, fixed and powered on, the controller can automatically measure the water content of the object to be measured, and the controller can output control signals to PLC to control other devices.

## 2. Working Principle

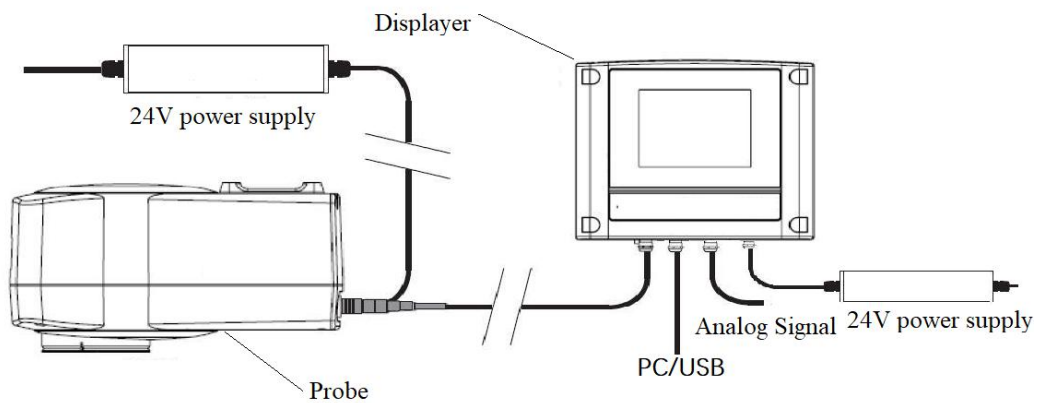
Water exhibits strong absorption characteristics for some specific wavelengths of infrared light (as shown in the left figure below). When the material is irradiated with these specific wavelengths of infrared light, the water contained in the material will absorb part of the energy of the infrared light, and the more water there is. The more the absorption is, the less reflected light can be measured to calculate the moisture of the material. Based on the above principle, GY1000 is developed using the more widely used diffuse reflection theory of water.

Optosky fully absorbs the pain points of the industry and digs deep into the needs of customers. GY1000 is the first in China to adopt dual-cooled imported lead sulfide detectors, with 4 wavelengths and 8 beams technology, supplemented by Optosky's years of photoelectric accumulation, aiming to create a domestic leading near-infrared detector Online moisture content analyzer, the principle of

GY1000 optical path is shown in the right figure below.



### 3. System composition



## 4. Specifications

<b>Monitor probes</b>		
1	Measuring Range	0 ~ 10% H <sub>2</sub> O
2	Light Source	12V/20W, Life>2000H
3	Measuring wavelength	1.43um, 1.8um, 1.94um, 2.1um
4	Detector	Cooled infrared detector (PbS)
5	Measurement accuracy	±0.1% H <sub>2</sub> O (Varies by application)
6	Repeatability	0.04%
7	Test speed	10ms
8	Measure distances	250±100mm
9	Detection area	Diameter 60mm
10	Motor speed	3000RPM/M
11	Lens window film	High transmittance quartz glass
12	Working temperature and humidity	Temperature: 0~50°C humidity: 40% -60%
13	Probe cable	Shielded twisted pair, not less than 10 m
14	Peripheral interface	DC convenience receptacle
15	Power supply	DC 24V/3A
16	Levels of protection	IP67
17	Heat dissipation mode	forced air cooling
18	Material quality	Aluminum alloy
19	Way to install	Lifting fixed
20	Reference dimension	194mm*194mm*320mm
21	Reference weight	No more than 12KG
<b>Controller</b>		
1	Touch screen	A 10-inch capacitive touchscreen
2	Operating system	Android 8.0
3	Displays the content	Water content, motor speed, ambient temperature, historical data curve, status, etc
4	internal storage	32G
5	Probe cable	Shielded twisted pair, not less than 20 m
6	peripheral interface	DC power socket, USB * 2, Analogue signal (4-20mADC)
7	Physical keys	Controller power switch
8	levels of protection	/
9	Heat dissipation mode	forced air cooling
10	power input	DC5V/2A
11	material quality	plastics
12	way to install	Install fixed
13	compound mode	One display supports a connection to up to 4 probes
14	reference dimension	285mm*280mm*148mm
15	Reference weight	No more than 3KG
<b>Packing list</b>		
Standard: 1 probe, 1 monitor, 1 cable, power adapter * 2		
Optional: Air cleaning window (with air hole)		

## 5. Industrial detection sensor product series produced

**工业检测（半导体、光伏、光学加工） 产品线**

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 <p><b>SM200 薄膜厚度测量仪</b></p>	<p><b>作用:</b> 检测透明或半透明薄膜的厚度</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 采用白光干涉原理;</li> <li>• 非接触式、非破坏性;</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 半导体镀膜: 光刻胶、氧化物、氮化层、绝缘体上硅、晶片背面研磨;</li> <li>• 液晶显示: 间隔厚度、聚酰亚胺、ITO透明导电膜;</li> <li>• 光学镀膜: 减反射层、抗反射层;</li> <li>• 微电子系统: 光刻胶、硅系膜状物、印刷电路板;</li> <li>• 生物医学: 医疗设备、Parylene</li> </ul>	 <p><b>SM230 自动光学薄膜厚度扫描测绘仪</b></p>	<p><b>作用:</b> 检测薄膜面的厚度分布情况</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 非接触式、快速检测;</li> <li>• 自动扫描检测;</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 半导体镀膜: 光刻胶、氧化物、氮化层、绝缘体上硅、晶片背面研磨;</li> <li>• 液晶显示: 间隔厚度、聚酰亚胺、ITO透明导电膜;</li> <li>• 光学镀膜: 减反射层、抗反射层;</li> <li>• 微电子系统: 光刻胶、硅系膜状物、印刷电路板;</li> <li>• 生物医学: 医疗设备、Parylene</li> </ul>	
 <p><b>SM500 手持式PN测试笔</b></p>	 <p><b>SM510 在线式PN型检测探头</b></p>	 <p><b>SM520 手持式方块电阻测试仪</b></p>	 <p><b>SM530 无线非接触 半导体电导率测试仪</b></p>	 <p><b>SM540 非接触 电容式非接触位移传感器</b></p>
<p><b>作用:</b> 检测半导体是P型的还是N型?</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 采用表面光电压技术, 能够快速、无损检测样品PN型号。</li> <li>• 测量结果通过LED直接显示。</li> <li>• 轻便、容易操作</li> <li>• 内置锂电池, 一次充电可测1万次以上;</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 多晶硅提纯/铸锭, 直拉单晶, 切片, 电池片生产</li> <li>• 可测量任意形状多晶硅样品</li> </ul>	<p><b>作用:</b> 检测半导体是P型的还是N型?</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 非接触式, 快速检测的PN类型检测传感器。</li> <li>• 检测速度快: 小于0.1s</li> <li>• 非接触式检测</li> <li>• 无损检测</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 光伏硅片分选</li> <li>• 多晶硅提纯/铸锭, 直拉单晶, 切片, 电池片生产</li> <li>• 可测量任意形状多晶硅样品</li> </ul>	<p><b>作用:</b> 测量半导体薄层电阻(表面电阻)</p> <p><b>特点:</b></p> <ul style="list-style-type: none"> <li>• 遵循美国ASTM标准</li> <li>• 体积小、重量轻</li> </ul> <p><b>应用领域:</b></p> <ul style="list-style-type: none"> <li>• 专门测量半导体薄层电阻</li> <li>• 一般半导体材料</li> <li>• 导电薄膜(ITO透明氧化膜)</li> <li>• 金属薄膜</li> </ul>	<p><b>作用:</b> 测试半导体材料的电导率</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 快速测试半导体的电导率;</li> <li>• 非接触测量, 无损测量</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 检测硅锭、棒、回炉料的体电阻率</li> <li>• 体电阻率测试</li> <li>• 单晶或多晶测量</li> <li>• 圆片和方片测量</li> </ul>	<p><b>作用:</b> 测试物体的距离、厚度</p> <p><b>产品特点:</b></p> <ul style="list-style-type: none"> <li>• 无磨损、非接触式测量</li> <li>• 二电极结构和电场屏蔽环构造;</li> <li>• 被测物体导电性强弱不影响测量</li> </ul> <p><b>产品应用:</b></p> <ul style="list-style-type: none"> <li>• 导电材料:</li> <li>• 半导体材料: 太阳能光伏硅片</li> <li>• 绝缘材料:</li> </ul>