



Pureⁿ-B HF

超高纯度气体微量HF分析仪

Trace Hydrogen fluoride Analyzer for Ultra-High Purity Gases

产品简介 Introduction

Pureⁿ-B HF 分析仪是一种结构简单、性能优越、适用范围广、价格较低的超高灵敏度分析装备，其核心技术是光腔衰荡光谱技术（简称 CRDS 技术），CRDS 技术决定其是一种绝对测量方法，测量可靠，精准，同时不需要校准，使您从繁琐的传感器维护、跨度校准、更换硬件中解脱出来。

The Pureⁿ- B HF Analyzer is an ultra-sensitive analysis instrument with a simple structure, superior performance, wide dynamic range and low price. The core technology is optical cavity ring-down spectroscopy (CRDS). CRDS technology is an absolute measurement method, the measurement is reliable and accurate, and does not require calibration at the same time. The analyzer can free users from cumbersome sensor maintenance, hussle calibration procedure, and replacement of hardware.

- Pureⁿ-B HF 分析仪测量气体多样性，高纯 N₂、高纯 NF₃ 等背景气体中的微量 HF 均可测量。

The Pureⁿ-B HF analyzer can measure many kinds of gases, trace HF in nitrogen(N₂)、nitrogen trifluoride(NF₃) and fluorocarbon(CF₄,C₂F₆,etc.) can all be measured.

- 内蒙古光能科技就在您的身边，可为您量身定做微量组份检测仪器，提供专业的售前维护，执行严格的检验标准，优质快捷的售后服务，真正做到您身边的气体分析专家。

Inner Mongolia Photonics Technologies Co. is right by your side. Our company could custom-made analyzers for you. We provide professional pre-sales consultation, implement strict inspection standards, and provide customers with quick and high quality after-sales service.

产品特点 Features

ppb 级的测量精度

Parts per billion(ppb)moisture detection capability in an array of gases

测量范围较宽

Wide dynamic range - over four orders of magnitude

实时响应速度

Real-time response

绝对测量（免于校准）

Absolute measurement

抗腐蚀性

Corrosive resistance

不间断测量

Continuous measurement

使用成本低、气体消耗量低、操作简单

Low cost of ownership, low gas consumption and operational simplicity

应用领域 Applications

半导体工业

Semiconductor Industry

液晶平板显示器（LCD）

Liquid Crystal Flat Panel Display

光电子器件（LED）制造业

Optoelectronics Manufacturing

太阳能光伏产业

Solar Industry

气体制造工业

Gas Manufacturing Industry

国家计量系统

National Metrology Institutions

科研机构

Scientific Research Institutions

性能规格 Detection Capability

被检气和背景气 Detection and Matrix	测量范围 Range	测量下限 Lower Detection Limit	灵敏度 Sensitivity
HF in N ₂	0-3ppm	0.5ppb	0.4ppb
HF in NF ₃	0-4ppm	0.75ppb	0.6ppb

背景气 Background Gases

N₂、SF₆、NF₃、CF₄、C₂F₆、C₃F₈、C₄F₆、C₄F₈

请与我们联系了解其他气体中HF的测量范围及灵敏度。 Please contact us to find out the range and sensitivity of HF in other gases.



Pureⁿ-M CO₂

超高精度CO₂分析仪

Ultra-High Precision Carbon dioxide Analyzer

产品简介 Introduction

Pureⁿ-M CO₂ 分析仪是一种结构简单、性能优越、适用范围广、价格较低的超高灵敏度分析装备，其核心技术是光腔衰荡光谱技术（简称 CRDS 技术），CRDS 技术决定其是一种绝对测量方法，测量可靠，精准，同时不需要校准，使您从繁琐的传感器维护、跨度校准、更换硬件中解脱出来。

The Pureⁿ- M CO₂ Analyzer is an ultra-sensitive analysis instrument with a simple structure, superior performance, wide dynamic range and low price. The core technology is optical cavity ring-down spectroscopy (CRDS). CRDS technology is an absolute measurement method, the measurement is reliable and accurate, and does not require calibration at the same time. The analyzer can free users from cumbersome sensor maintenance, hussle calibration procedure, and replacement of hardware.

- Pureⁿ-M CO₂ 分析仪测量气体多样性，高纯 N₂、清洁干燥空气等背景气体中的微量 CO₂ 均可测量。

The Pureⁿ- M CO₂ analyzer can measure many kinds of gases, trace carbon dioxide in nitrogen(N₂) and clean air can all be measured.

- 内蒙古光能科技就在您的身边，可为您量身定做微量组份检测仪器，提供专业的售前维护，执行严格的检验标准，优质快捷的售后服务，真正做到您身边的气体分析专家。

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Real-time response

绝对测量（免于校准）

Absolute measurement

抗腐蚀性

Corrosive resistance

不间断测量

Continuous measurement

使用成本低、气体消耗量低、操作简单

Low cost of ownership, low gas consumption and operational simplicity

应用领域 Applications

气体制造工业

Gas Manufacturing Industry

国家计量系统

National Metrology Institutions

科研机构

Scientific Research Institutions

性能规格 Detection Capability

被检气和背景气 Detection and Matrix	测量范围 Range	测量下限 Lower Detection Limit	灵敏度 Sensitivity
CO ₂ in N ₂	0-1500ppm	250ppb	80ppb
CO ₂ in Clean Dry Air	0-1500ppm	250ppb	100ppb

请与我们联系了解其他气体中CO₂的测量范围及灵敏度 Please contact us to find out the range and sensitivity of CO₂ in other gases.



Pureⁿ-B H₂S

高纯度气体微量H₂S分析仪

Trace Hydrogen sulfide Analyzer for Ultra-High Purity Gases

产品简介 Introduction

Pureⁿ-B H₂S 分析仪是一种结构简单、性能优越、适用范围广、价格较低的超高灵敏度分析装备，其核心技术是光腔衰荡光谱技术（简称 CRDS 技术），CRDS 技术决定其是一种绝对测量方法，测量可靠，精准，同时不需要校准，使您从繁琐的传感器维护、跨度校准、更换硬件中解脱出来。

The Pureⁿ- B H₂S Analyzer is an ultra-sensitive analysis instrument with a simple structure, superior performance, wide dynamic range and low price. The core technology is optical cavity ring-down spectroscopy (CRDS). CRDS technology is an absolute measurement method, the measurement is reliable and accurate, and does not require calibration at the same time. The analyzer can free users from cumbersome sensor maintenance, hussle calibration procedure, and replacement of hardware.

- Pureⁿ-B H₂S 分析仪测量气体多样性，高纯 N₂、高纯 SF₆ 等背景气体中的微量 H₂S 均可测量。

The Pureⁿ-B H₂S analyzer can measure many kinds of gases, trace HF in nitrogen(N₂) and sulfur hexafluoride(SF₆) can all be measured.

- 内蒙古光能科技就在您的身边，可为您量身定做微量组份检测仪器，提供专业的售前维护，执行严格的检验标准，优质快捷的售后服务，真正做到您身边的气体分析专家。

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实时响应速度

Real-time response

绝对测量（免于校准）

Absolute measurement

抗腐蚀性

Corrosive resistance

不间断测量

Continuous measurement

使用成本低、气体消耗量低、操作简单

Low cost of ownership, low gas consumption and operational simplicity

应用领域 Applications

电力系统

Power System Analysis

气体制造工业

Gas Manufacturing Industry

国家计量系统

National Metrology Institutions

科研机构

Scientific Research Institutions

性能规格 Detection Capability

被检气和背景气 Detection and Matrix	测量范围 Range	测量下限 Lower Detection Limit	灵敏度 Sensitivity
H ₂ S in N ₂	0-1000ppm	50ppb	40ppb
H ₂ S in SF ₆	0-800ppm	70ppb	50ppb

请与我们联系了解其他气体中H₂S的测量范围及灵敏度 Please contact us to find out the range and sensitivity of H₂S in other gases.



Pureⁿ-B CH₂O

超高精度CH₂O分析仪

Ultra-High Precision Formaldehyde Analyzer

产品简介 Introduction

Pureⁿ-B CH₂O 分析仪是一种结构简单、性能优越、适用范围广、价格较低的超高灵敏度分析装备，其核心技术是光腔衰荡光谱技术（简称 CRDS 技术），CRDS 技术决定其是一种绝对测量方法，测量可靠，精准，同时不需要校准，使您从繁琐的传感器维护、跨度校准、更换硬件中解脱出来。

The Pureⁿ-B CH₂O Analyzer is an ultra-sensitive analysis instrument with a simple structure, superior performance, wide dynamic range and low price. The core technology is optical cavity ring-down spectroscopy (CRDS). CRDS technology is an absolute measurement method, the measurement is reliable and accurate, and does not require calibration at the same time. The analyzer can free users from cumbersome sensor maintenance, hussle calibration procedure, and replacement of hardware.

- Pureⁿ-B CH₂O 分析仪测量气体多样性，高纯 N₂、高纯 H₂、洁净空气等背景气体中的微量 CH₂O 均可测量。
The Pureⁿ-B CH₂O analyzer can measure many kinds of gases, trace CH₂O in nitrogen(N₂)、hydrogen (H₂) and clean air can all be measured.

- 内蒙古光能科技就在您的身边，可为您量身定做微量组份检测仪器，提供专业的售前维护，执行严格的检验标准，优质快捷的售后服务，真正做到您身边的气体分析专家。

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产品特点 Features

ppb 级的测量精度

Parts per billion(ppb)moisture detection capability in an array of gases

测量范围较宽

Wide dynamic range - over four orders of magnitude

实时响应速度

Real-time response

绝对测量（免于校准）

Absolute measurement

抗腐蚀性

Corrosive resistance

不间断测量

Continuous measurement

使用成本低、气体消耗量低、操作简单

Low cost of ownership, low gas consumption and operational simplicity

应用领域 Applications

国家计量系统

National Metrology Institutions

科研机构

Scientific Research Institutions

环境监测

Environmental Monitoring

性能规格 Detection Capability

被检气和背景气 Detection and Matrix	测量范围 Range	测量下限 Lower Detection Limit	灵敏度 Sensitivity
CH ₂ O in N ₂	0-40ppm	4ppb	2.5ppb
CH ₂ O in H ₂	0-40ppm	5ppb	3ppb

请与我们联系了解其他气体中CH₂O的测量范围及灵敏度 Please contact us to find out the range and sensitivity of CH₂O in other gases.

内蒙古光能科技有限公司

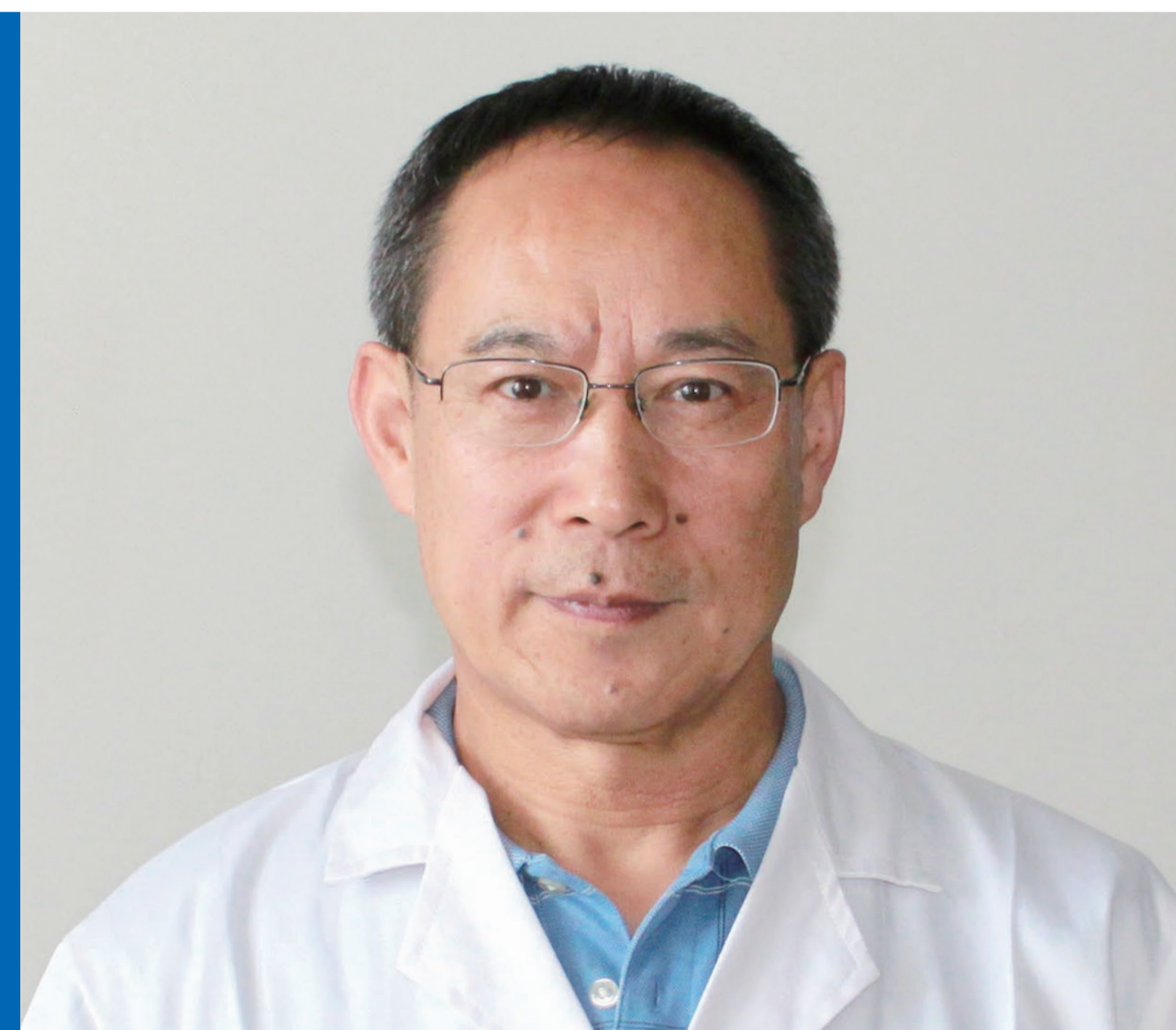
Inner Mongolia Photonics Technologies

内蒙古光能科技有限公司成立于 2015 年，由国家特聘专家——阎文斌博士与内蒙古双欣资源控股有限公司、鄂尔多斯市高新技术产业投资有限公司共同发起成立，旨在开发和生产世界最先进的超高灵敏度激光气体检测分析仪器，主要用于各种高纯气体中微量杂质的检测和分析。

公司成立以来，在充分掌握最先进的连续激光光腔衰荡检测工艺的核心技术基础上，通过不断研究创新，结合高品质的原材料和超高纯零部件自主开发出了微量 H₂O 分析仪，O₂ 分析仪，HF 分析仪，HCl 分析仪，HBr 分析仪，HCN 分析仪，H₂S 分析仪，CO 分析仪，CO₂ 分析仪，CH₄ 分析仪，C₂H₂ 分析仪，NH₃ 分析仪等，其检测精度可达到 1ppb。

基于不懈的技术创新，严格的品质管理和国内制造的成本优势，光能科技以实用的产品，专业的服务，合理的价格为客户提供高性价比的气体检测解决方案。

The company is formed in 2015 jointly by Dr. Wen-Bin Yan, Inner Mongolia Shuangxin Group, and Ordos High Tech Investment Company. The focus of the company is to develop advanced, highly sensitive trace gas analyzers for high purity gas applications. Since inception, the company has made significant advances in the continuous-wave cavity ring-down spectroscopy (CRDS) technology. Combined with advanced designs and superior manufacturing, we have developed products that can measure common trace gases, such as H₂O, O₂, HF, HCl, HBr, HCN, H₂S, CO, CO₂, CH₄, C₂H₂, NH₃ etc., with lower detection limit down to 1ppb. With strict quality control, we strive to provide customers with the most affordable analyzers, and fast service and professional solutions, all within the country without the need to import internationally.



研发团队带头人、首席科学家 阎文斌 博士

Team Leader, Chief Scientist
Dr. Wen-Bin Yan

国家“千人计划”特聘专家、“中国政府友谊奖”获得者，美国莱斯大学化学博士。在海外近 30 年中，一直在高等院校、科研机构和企业从事激光与光谱分析领域的教学、科研和开发工作，拥有多项发明专利，并创造了多个世界首创的成果，特别是在光腔衰荡光谱领域，由阎博士牵头研发的世界第一台光腔衰荡光谱法产品获得 2002 年度美国 R&D100 奖。自 2006 年起担任中国国家气体标准化技术委员会委员，主笔起草了中华人民共和国国家标准 GB/T 5832.3:【气体中微量水分的测定 第 3 部分：光腔衰荡光谱法】。

阎博士带领的研发团队被评为内蒙古自治区“草原英才创新创业人才团队”，他还获得内蒙古自治区“草原英才”、鄂尔多斯市“天骄英才”、自治区“骏马奖”、鄂尔多斯市“优秀科技工作者”、鄂尔多斯市“优秀创新创业者”等多个荣誉称号。

Dr. Yan received his Ph.D. from Rice University. He is a national Recruit from Overseas. He received the prestigious Chinese government “Friendship Award” in 2014. In 30 years of research in the US and Canada, he has published many papers and received several patents. He made several “firsts” in his research, in particular, he led the development of the world’s first commercial CRDS product, which received the 2002 “R&D 100” award. He wrote the Chinese National Standard GB/T 5832.3: “Trace moisture analysis, 3rd part: CRDS method”.

Dr. Yan’s team was selected as “Prairie Talent Innovative Entrepreneurship” of Inner Mongolia, He has been selected to receive several awards from Ordos City and provincial government.

高灵敏度气体分析仪 High Sensitivity Gas Analyzers



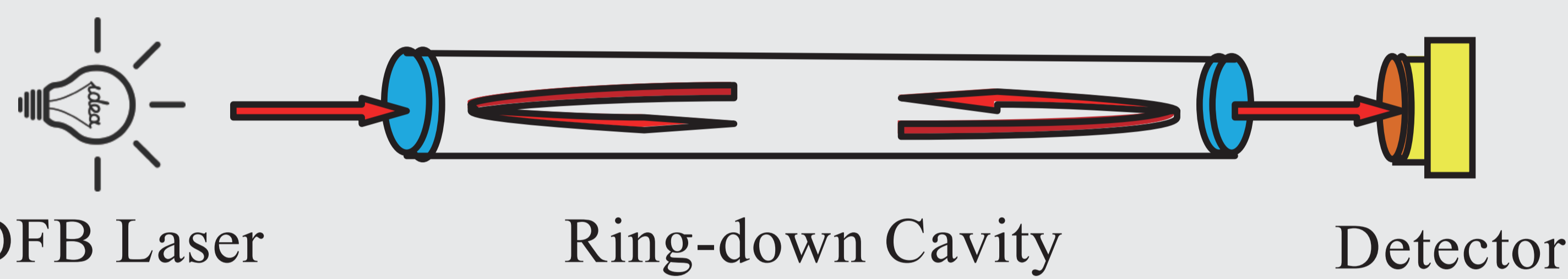
高灵敏度气体分析仪是一种结构简单、性能优越、适用范围广、价格较低的超高灵敏度微量气体分析装备，主要用于检测 H₂O、NH₃、CH₄ 等微量气体，也可对有毒气体、腐蚀性气体如 H₂S、HF、HBr、HCl 等进行检测。

Superior performance, compact, robust, highly sensitive, affordable, fast service. Our analyzers can measure trace gases H₂O, NH₃, CH₄ and others, including corrosive gases like H₂S, HF, HBr, and HCl.

光腔系统 CRDS Principle

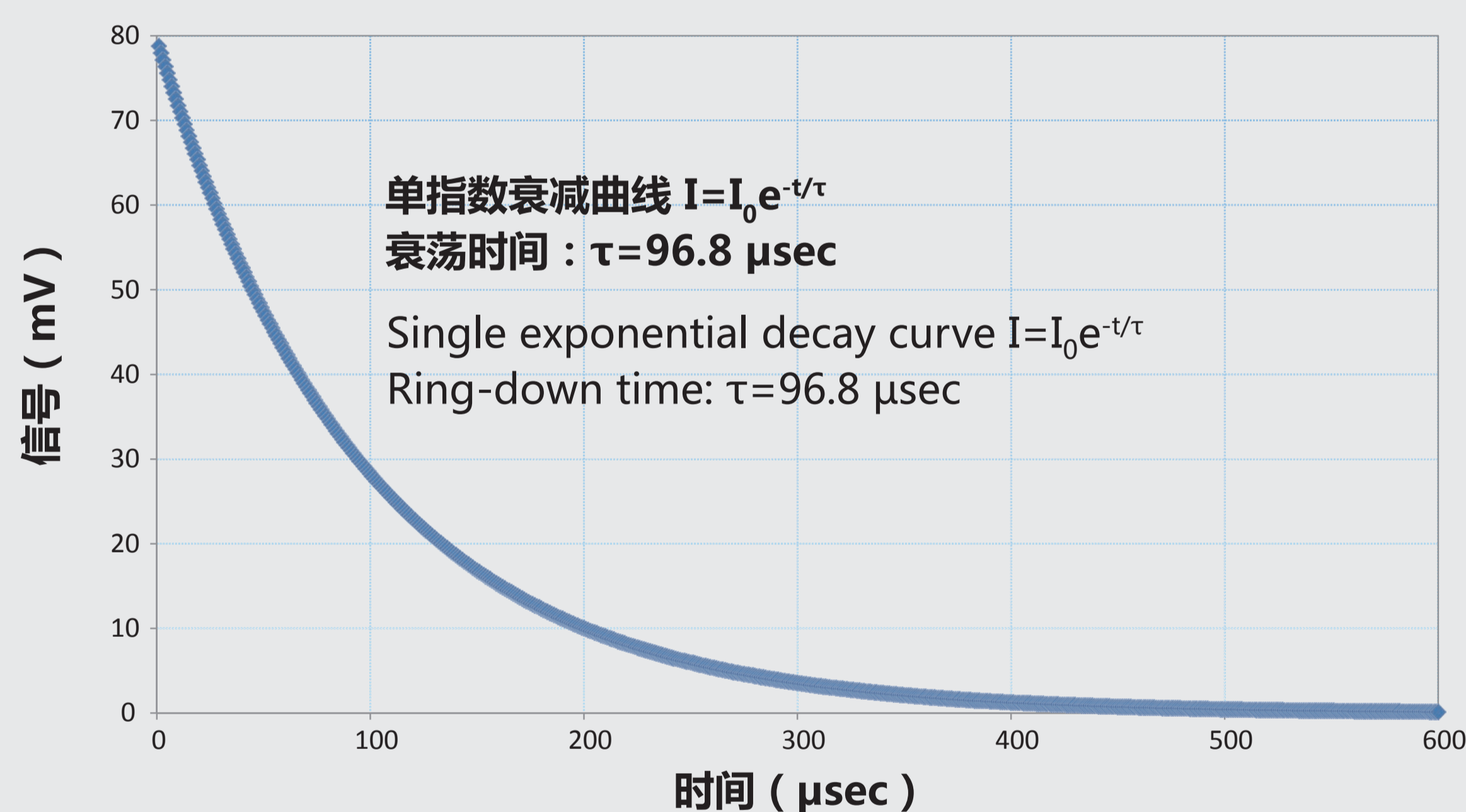
设备的核心为光腔衰荡光谱法，其基本原理如图示意：

The technology is based on cavity ring-down spectroscopy (CRDS). The key features are shown below:



主要部件由激光源、一对高反射镜形成的光腔测量室和光探测器组成。光腔内在激光的照射下储存有许多光子，在瞬时关闭光源时，光腔内的光子会衰减。探测器探测到的衰减信号就是一次检测。信号如下图所示。可以看到，信号测量在很短时间就可完成，从而实现高速检测。

The main components are: laser source; a pair of highly reflective mirrors which form a stable cavity; and a light detector. When laser enters the cavity, photons will accumulate in the cavity. Once the laser is interrupted, the photons in the cavity will ring-down, and the detector will record the decay signal. As shown below, the signal will be measured in microseconds. Thus the measurement speed is very fast.



气路系统 Gas Line System

气路系统选择和世伟洛克、富士金等知名超洁净管生产厂商合作，保证气路系统的完全密封和气体测量的高精度。

All gas tubing, connectors and valves are selected from the industry leading suppliers like Swagelok, Fujikin and others, ensuring leak-free system and measurement integrity.

人机交互控制 User Interface

设计了符合人因工程的友好交互界面，实现便捷的人机交互。

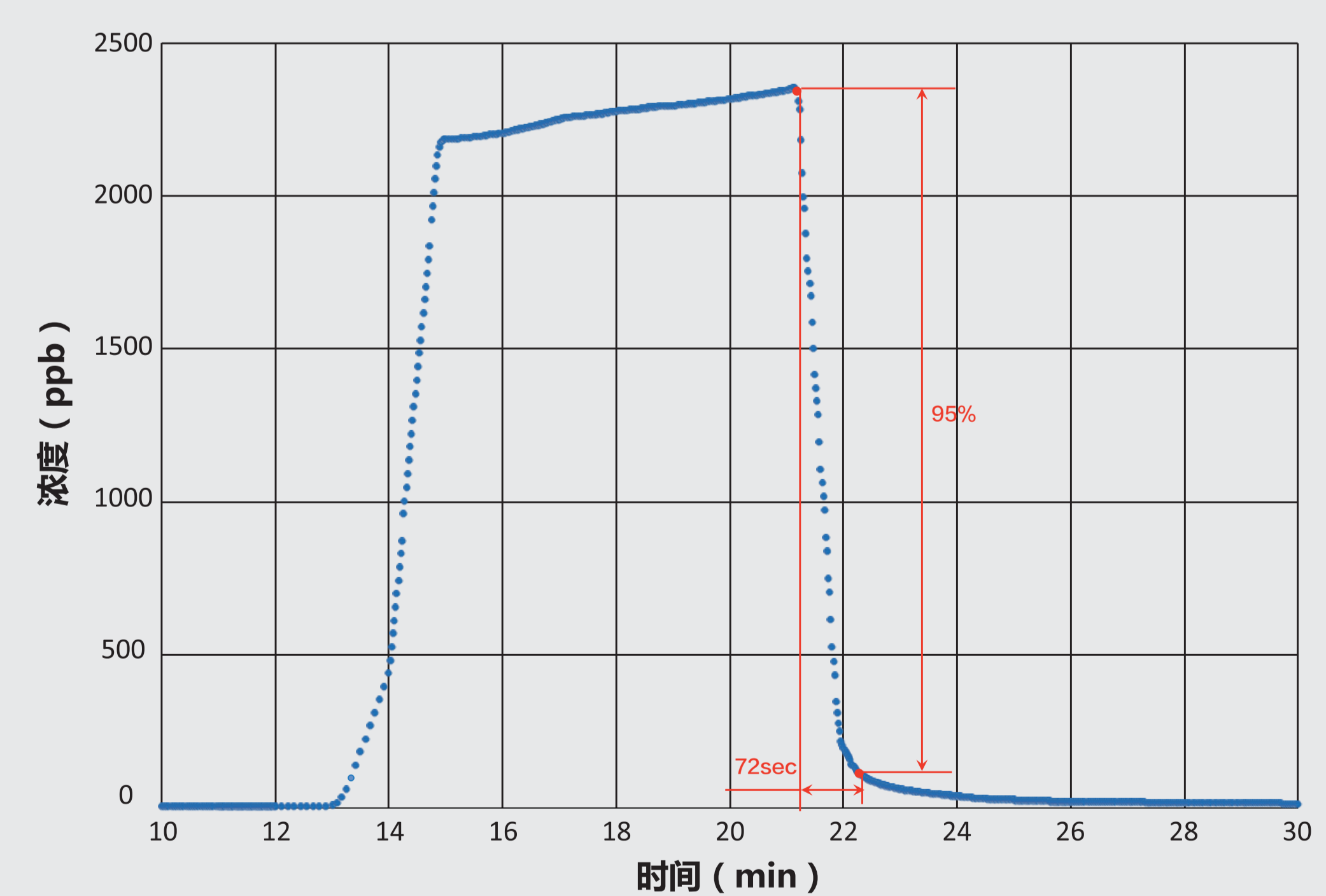
Our software has user-friendly interface, so customers need minimal training to learn the operation of the instrument.



水分分析仪响应时间 Moisture Measurement Response Time

切换被测气体后，由2300ppb下降95%耗时仅需72sec，响应非常迅速。

When switched to dry N₂, dry down 95% from 2300 ppb in only 72 seconds, very fast response.



5大产品特点 Five Features


**ppb级
测量精度**
ppb
accuracy


**实时
响应速度**
real time
response


绝对测量
absolute
measurement


抗腐蚀
corrosive
resistant


不间断测量
continuous
measurement