

# 罗德与施瓦茨

## R&S® RTB2000系列数字示波器

### Power of 10

### “十”力钜献



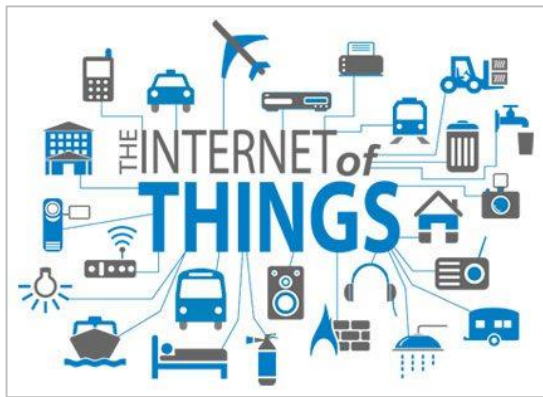
扫码二维码关注我们  
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 海洋仪器

致力于电子测试、维护领域！

# R&S® RTB2000

## 一、对于目标观众的大



- IoT - 特别是教育类客户和一些仪器预算较少的公司
- 期望更大的显示屏幕 / 更好的外观（年长的工程师，工作台空间更高大上）
- 期望从新一代技术中增加功能 — 但价格不变

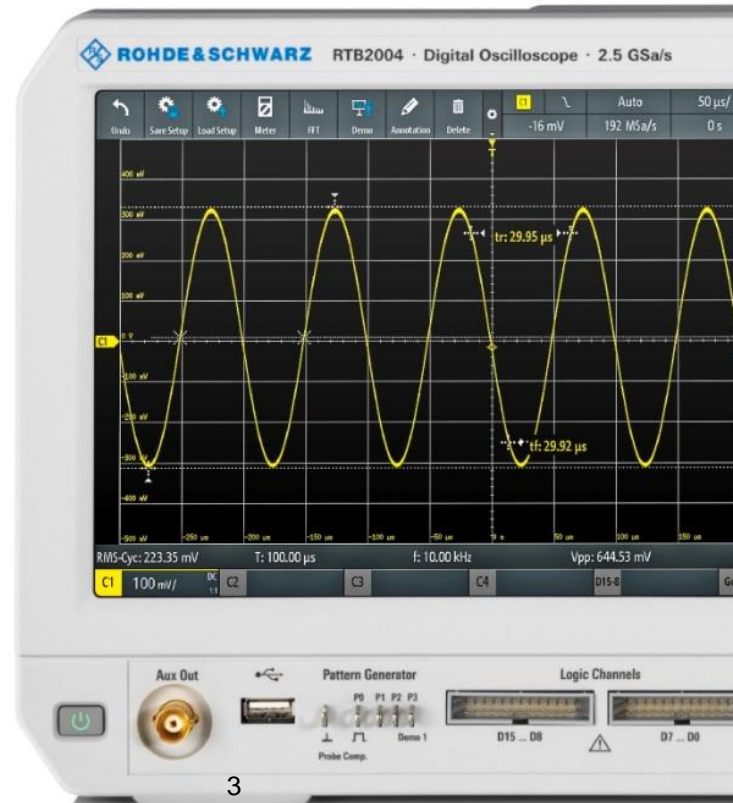
# RTB2000 —— Power of 10 “十” 力矩献

二、全球首款2000级别的示波器，具有：

10-bit ADC

10 MSample 存储深度

10” 触摸屏



RTB2000

# 10-bit ADC

## 2.1 垂直分辨率提升4倍

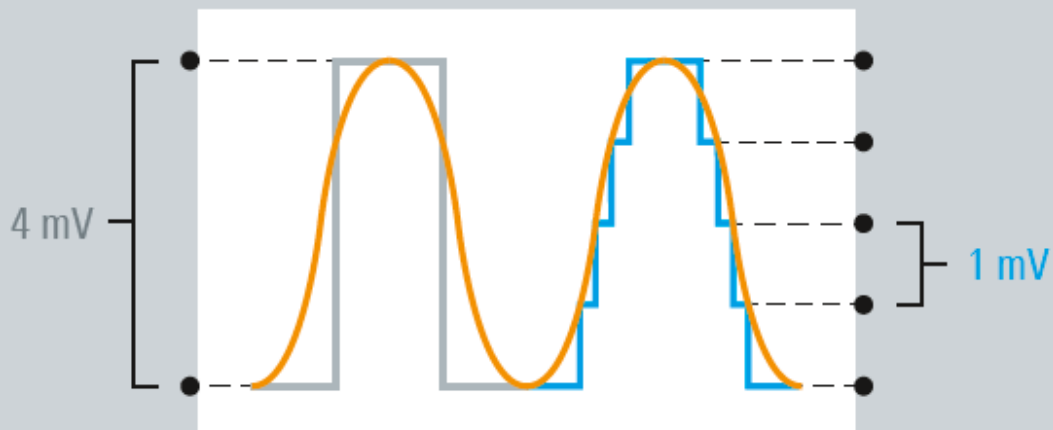
传统示波器

8 位垂直分辨率

R&S®RTB2000

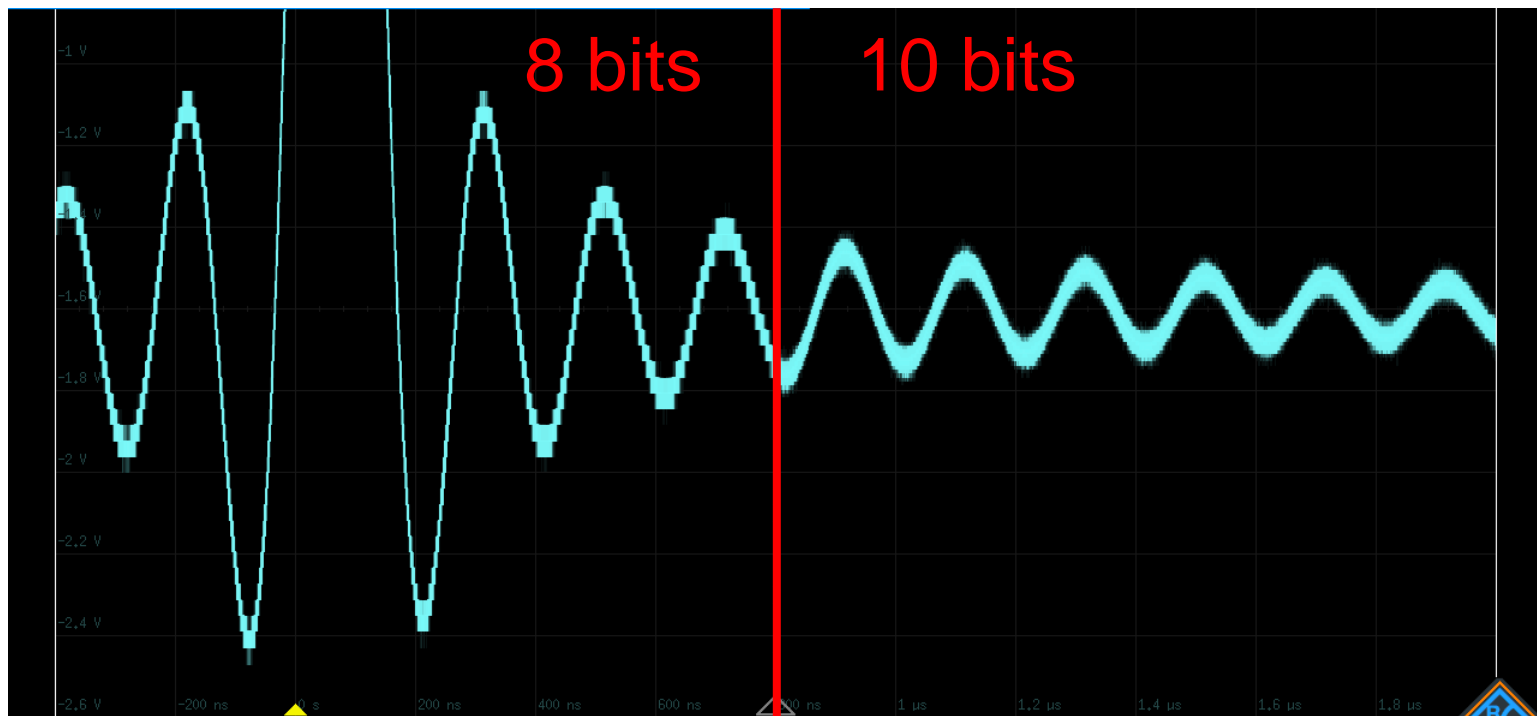
10 位垂直分辨率

最佳分辨率, 1V信号



# 10-bit ADC

垂直分辨率提升4倍

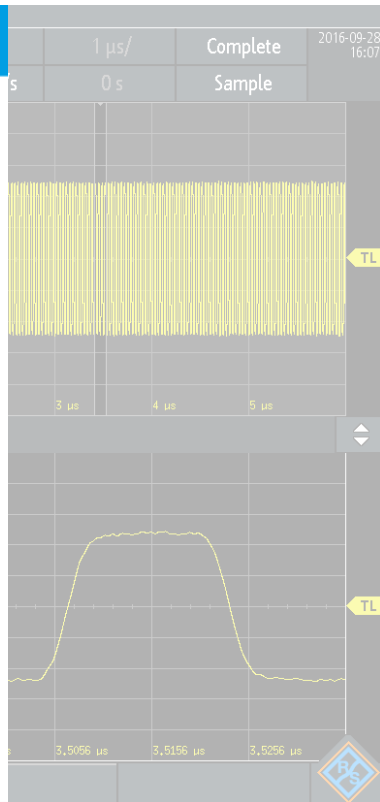
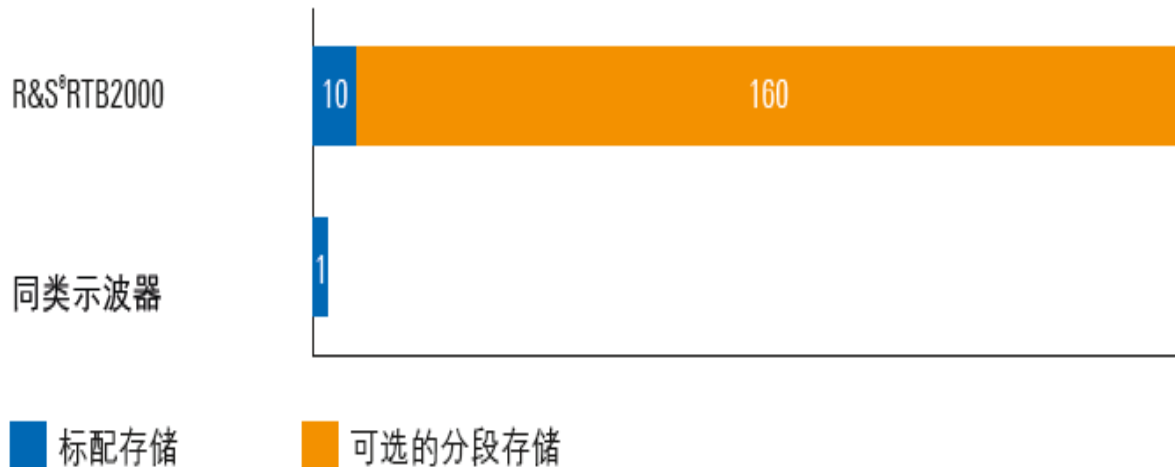


# 10 Msample 存储深度

## 2. 2捕获更长时间波形

存储深度是同级别传统示波器的 10 到 100 倍

具有领先的 160 Msample 存储深度，可采集最长的时间序列



# 10" 高分辨率电容触摸屏

## 2.3 支持手势操作

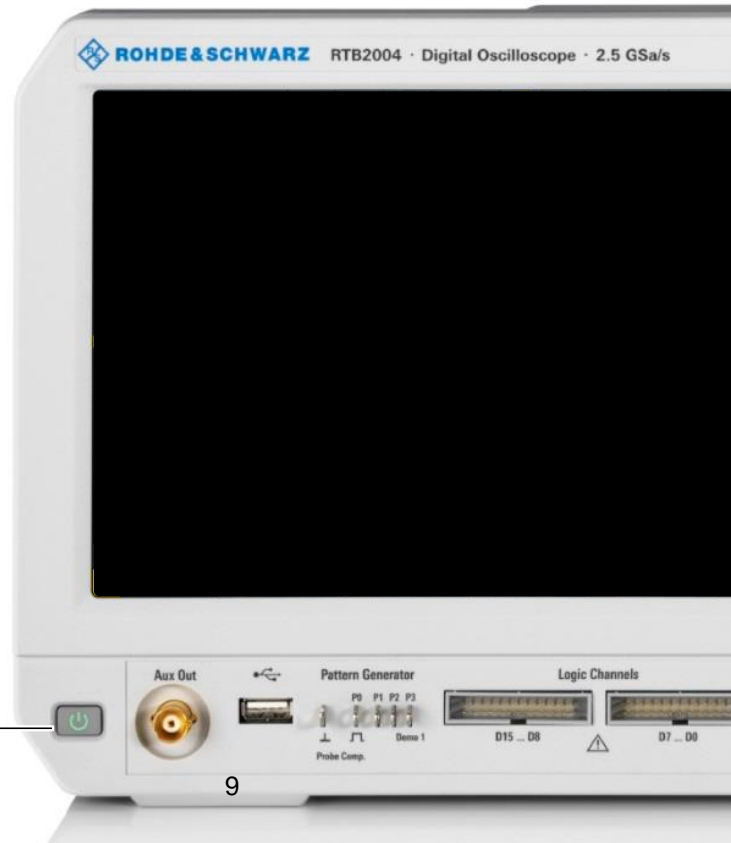


# RTB2000概览

2. 4全球首款2000级别的示波器，具有：

10秒开机时间

RTB2000

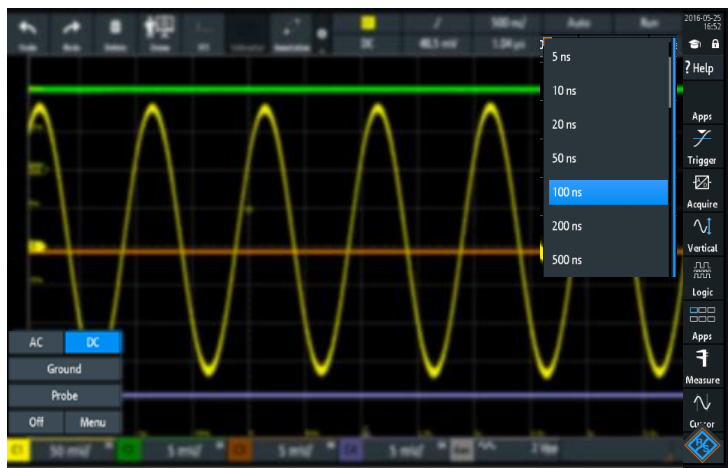






## 快速访问重要工具

- 用于访问常用功能的工具栏
- 用于直观的进行功能设置的工具条





## 一键式结果保存

- 屏幕截图或仪器设置保存

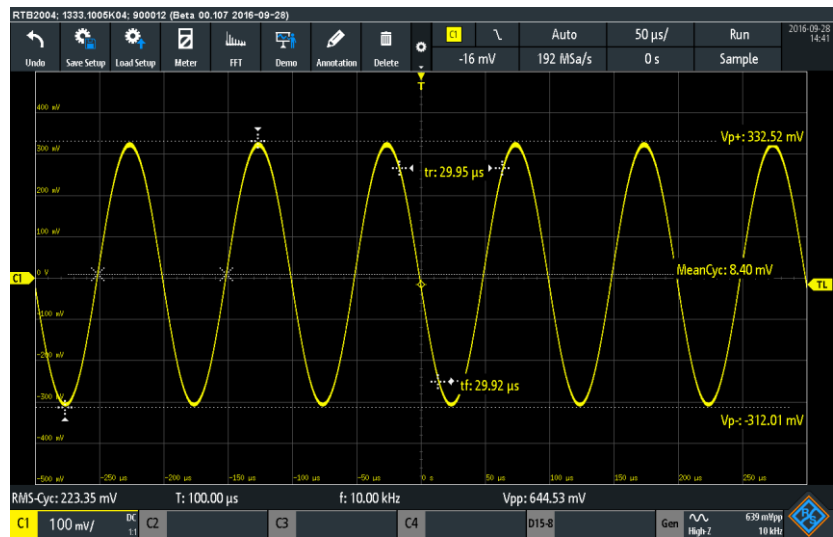


## 自动设置功能

- 自动选择垂直、水平和触发设置，以最佳方式查看当前信号
- 设置FFT参数



使用颜色编码控件显示当前通道



## 快速测量：一键测量结果

- 在波形上直接显示当前信号的主要测量结果



## 保护仪器和数据

- 防盗锁插孔
- 用于经济型锁的锁环
- 安全擦除功能



## 标配连接

- USB device（前面板）和 host（后面板）
- 标配以太网LAN连接和远程显示

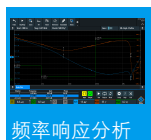
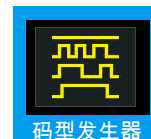
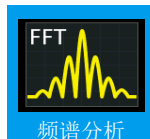
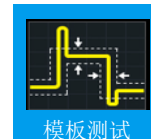
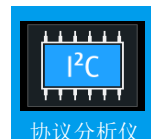
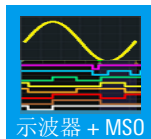


# R&S® RTB2000

## 三、新的维度——多合一



集多种仪器于一体





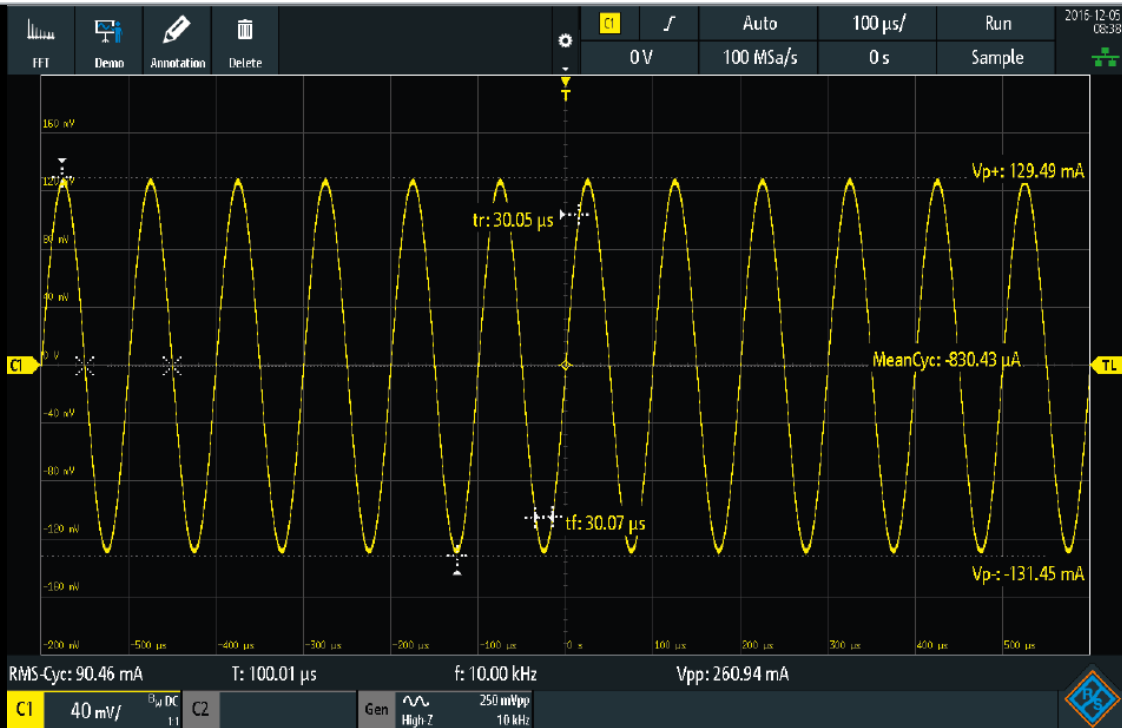
# R&S® RTB2000

## 3.1新的维度——多合一

示波器



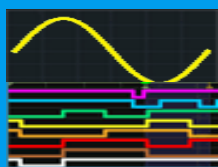
示波器 + MSO



快速测量：  
一键测量所  
有主要参数

## 新的维度——多合一

示波器



示波器 + MSO

RTB2004: 1333.1005K04: 101298 (01.203 2017-03-02)

Auto 50 μs/ 1.22 V 2.5 GSa/s 0 s Run 2017-03-27 16:02

选择类型

基本 垂直 水平 计数

幅度	高电平	低电平	周期平均	周期 RMS
峰峰值	最大值	最小值	正过冲	负过冲
$\bar{x} = \frac{1}{N} \sum_{k=1}^N x_k$ 平均值	$x_{RMS} = \sqrt{\frac{1}{N} \sum_{k=1}^N x_k^2}$ RMS 值	$\sigma = \sqrt{\frac{1}{N-1} \sum_{k=1}^N (x_k - \bar{x})^2}$ $\sigma$ -标准偏差	$\sigma$ -周期标准方差	$Crest = \frac{\max  x_k }{x_{RMS}}$ 波峰因数

测量项: 1

测量1: [ ]

类型: 峰峰值

源: C1

返回

Menu

自动测量：  
图形化显示  
测量参数意义

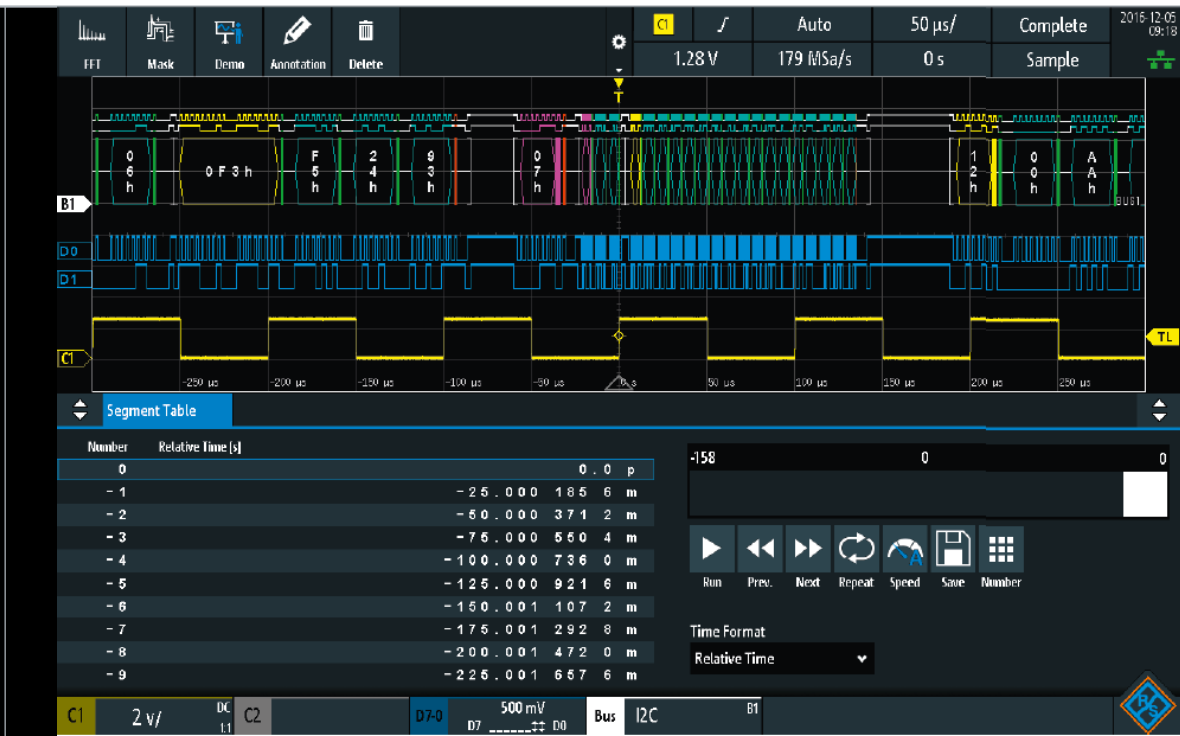
# R&S®RTB2000

## 新的维度——多合一

示波器



示波器 + MSO



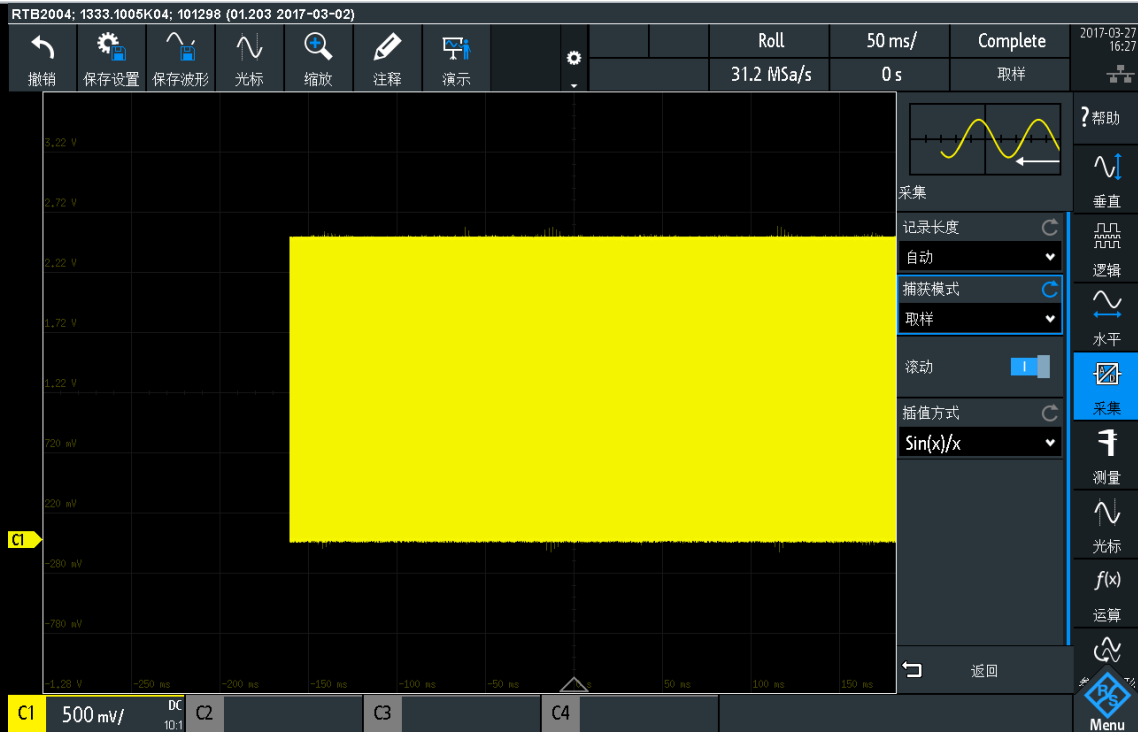
历史+分段  
存储功能，  
存储深度提  
升至160M

## 新的维度——多合一

示波器



示波器 + MSO



滚动模式

# R&S®RTB2000

## 新的维度——多合一

MSO



示波器 + MSO



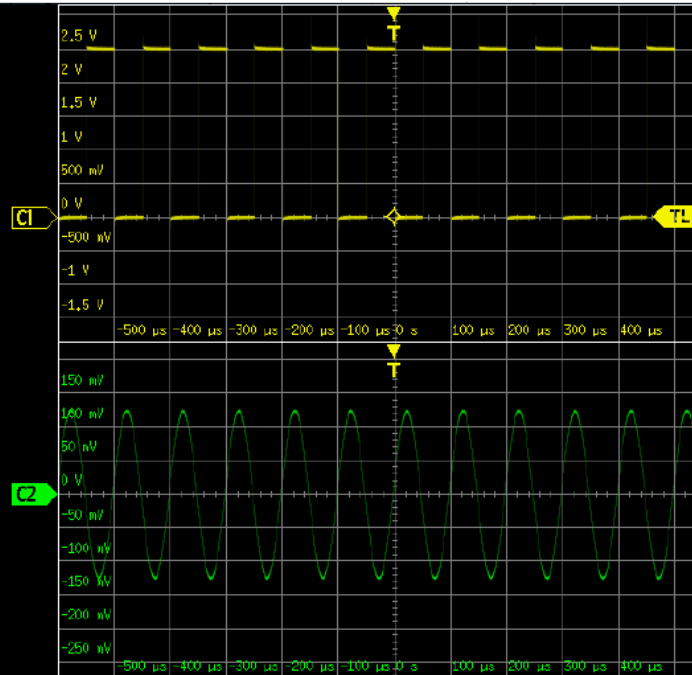
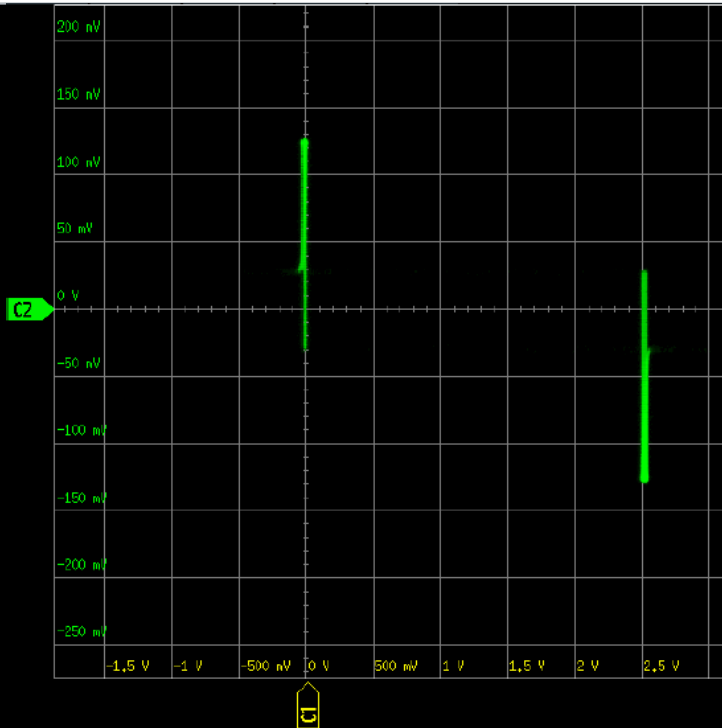
混合信号示波器：  
16路数字通道  
带宽300MHz，  
采样率每通道  
1.25GSa/s，存储深度每通道  
10M

## 3.2新的维度——多合一

XY模式



XY模式

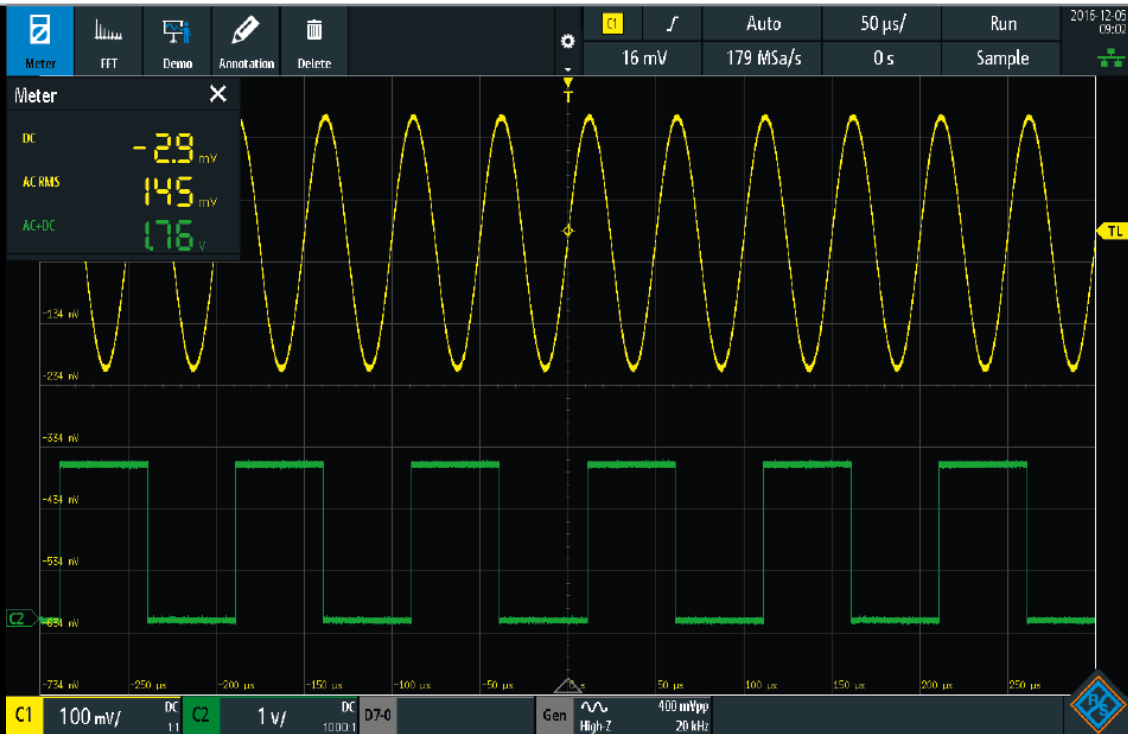


## 3.3新的维度——多合一

数字电压表

13.3 mV

数字电压表

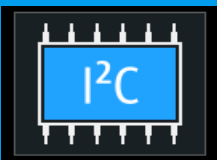


三位电压表和六位频率计，可实现同步测量

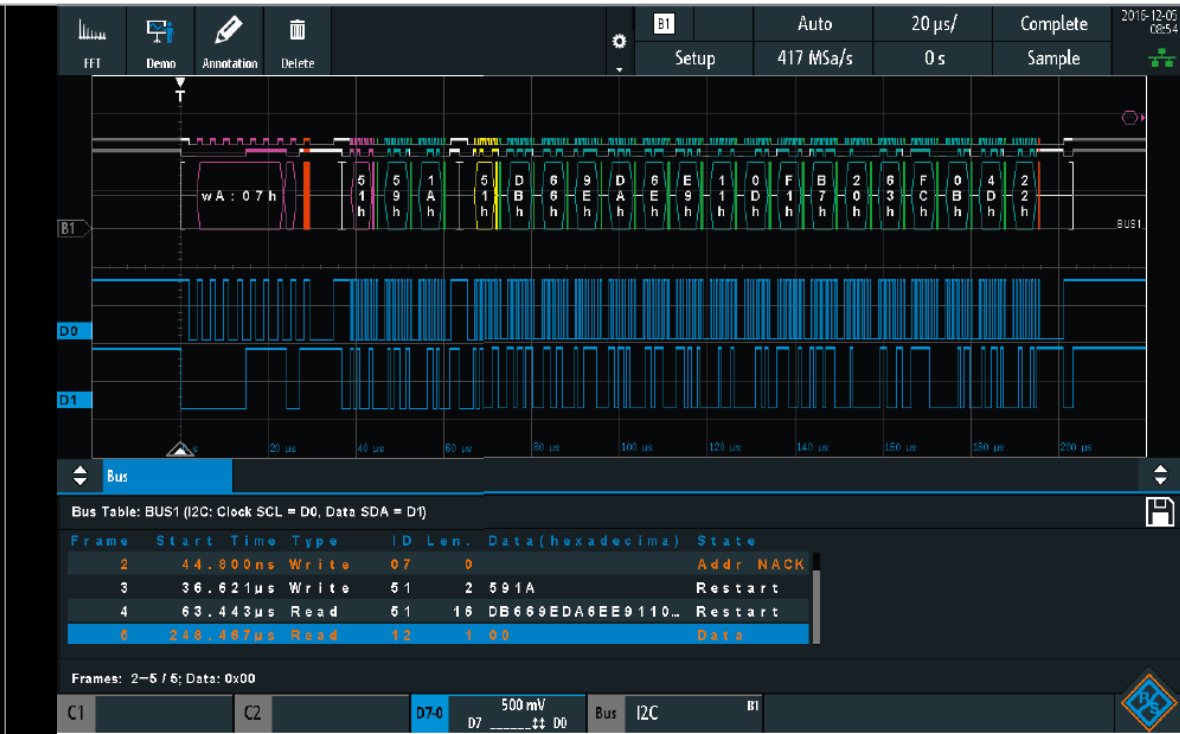
# R&S® RTB2000

## 3.4新的维度——多合一

协议分析仪



协议分析仪



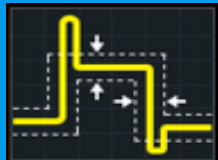
硬件实现串  
行总线解码  
分析



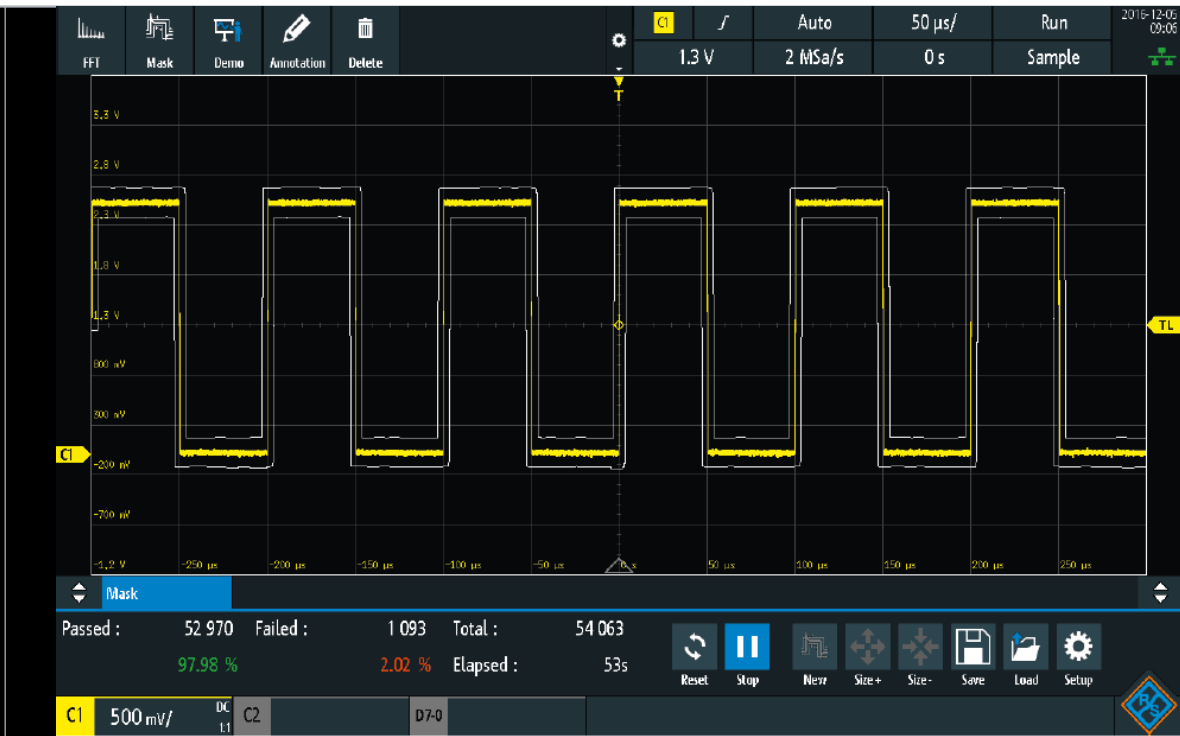
# R&S® RTB2000

## 3.5新的维度——多合一

模板测试



模板测试



支持多种动作设置：  
报警声、停止、输出脉冲、截屏、保存波形

# R&S® RTB2000

## 3.6新的维度——多合一

频谱分析



频谱分析



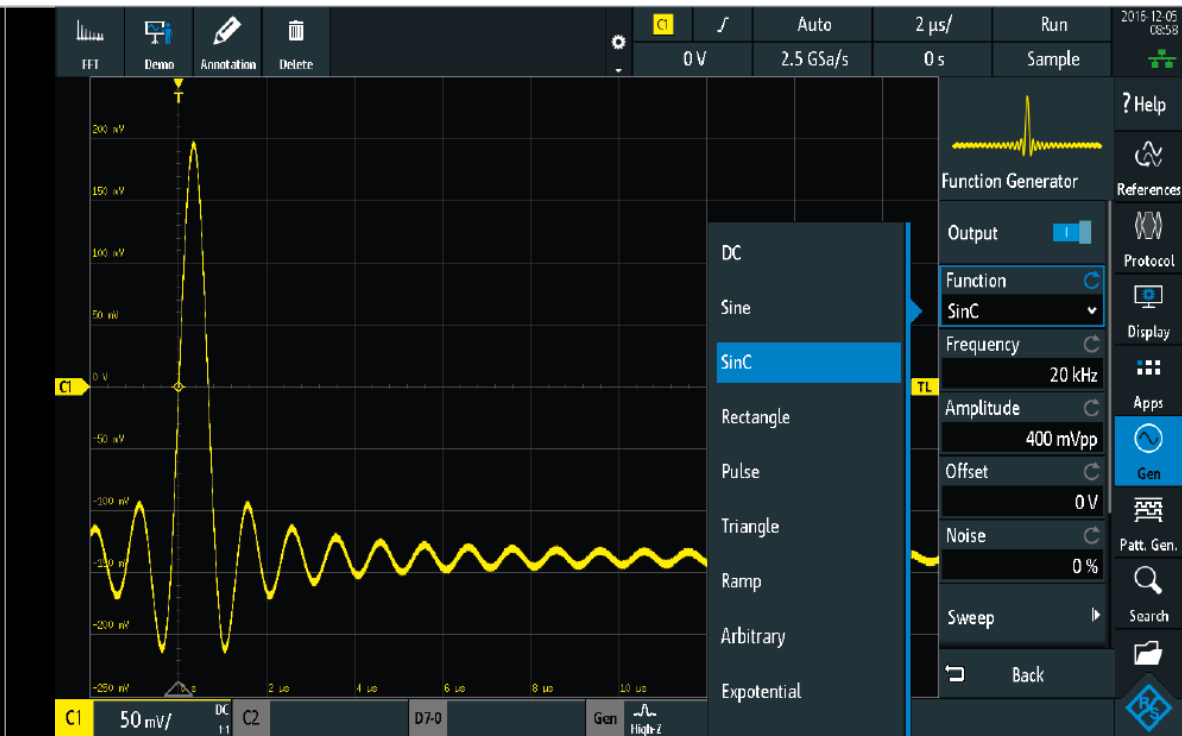
可对频谱进行自动设置，光标测量

## 3.7新的维度——多合一

函数发生器



函数发生器



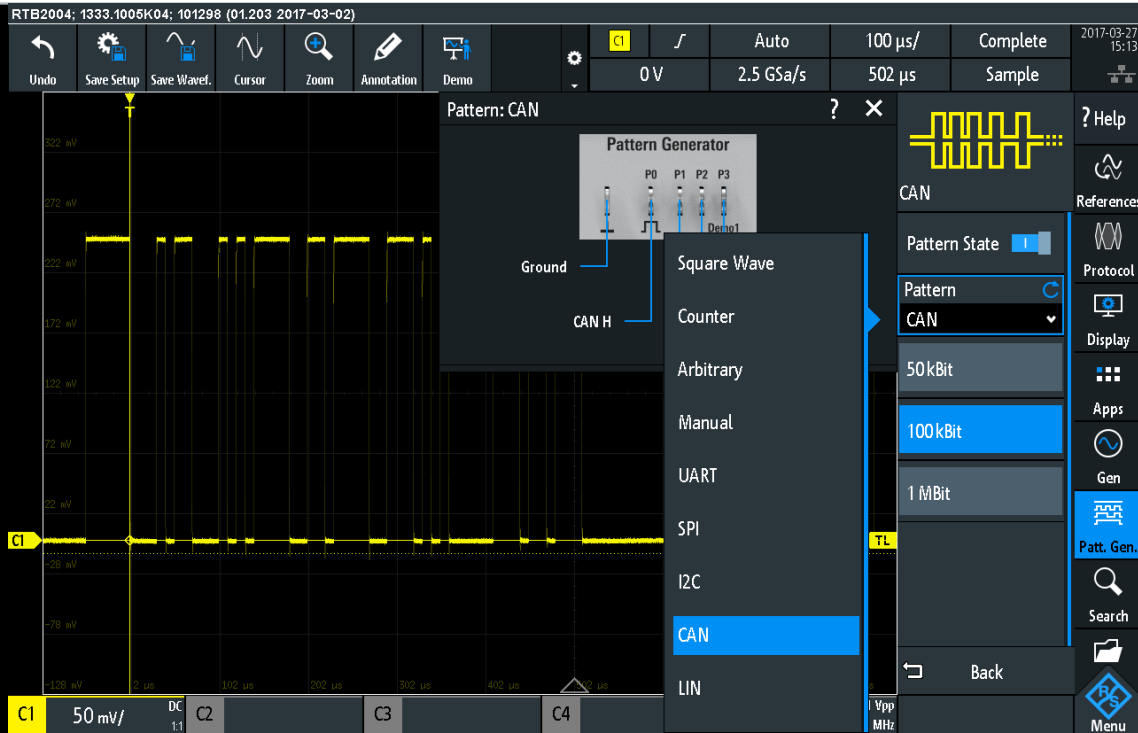
信号频率高达  
25MHz，可自定义  
任意输出波形，  
也可从示波器波  
形中复制

## 3.8新的维度——多合一

码型发生器



码型发生器

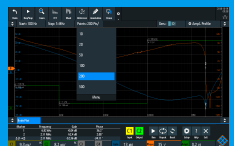


支持通用码型及  
自定义码型

# R&S® RTB2000

## 3.9新的维度——多合一

频率响应分析



波特图

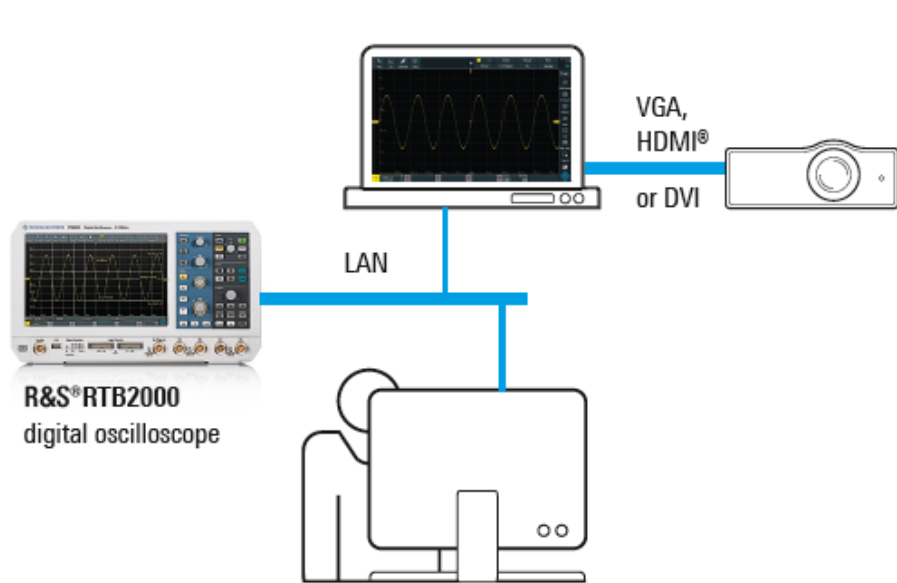


测定多种电子设备的频率响应

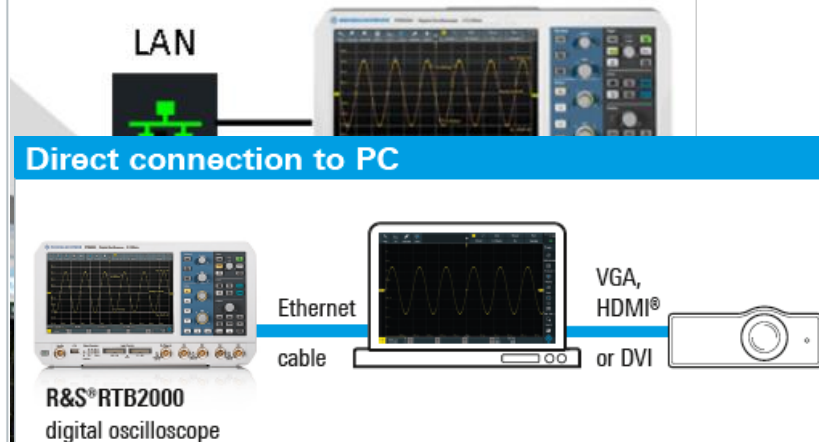
# R&S® RTB2000

## 3.10新的维度——灵活的远程连接方式（以太网）

### Connection via LAN

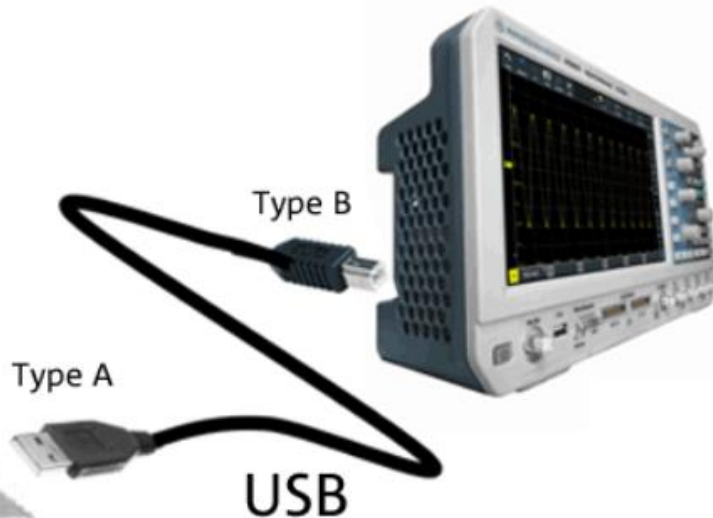


### Direct connection to PC



# R&S®RTB2000

## 新的维度——灵活的远程连接方式（以太网+USB）



## 新的维度——灵活的远程连接方式（以太网）





## 新的维度——灵活的远程连接方式（以太网）



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**Instrument Home** Print view 

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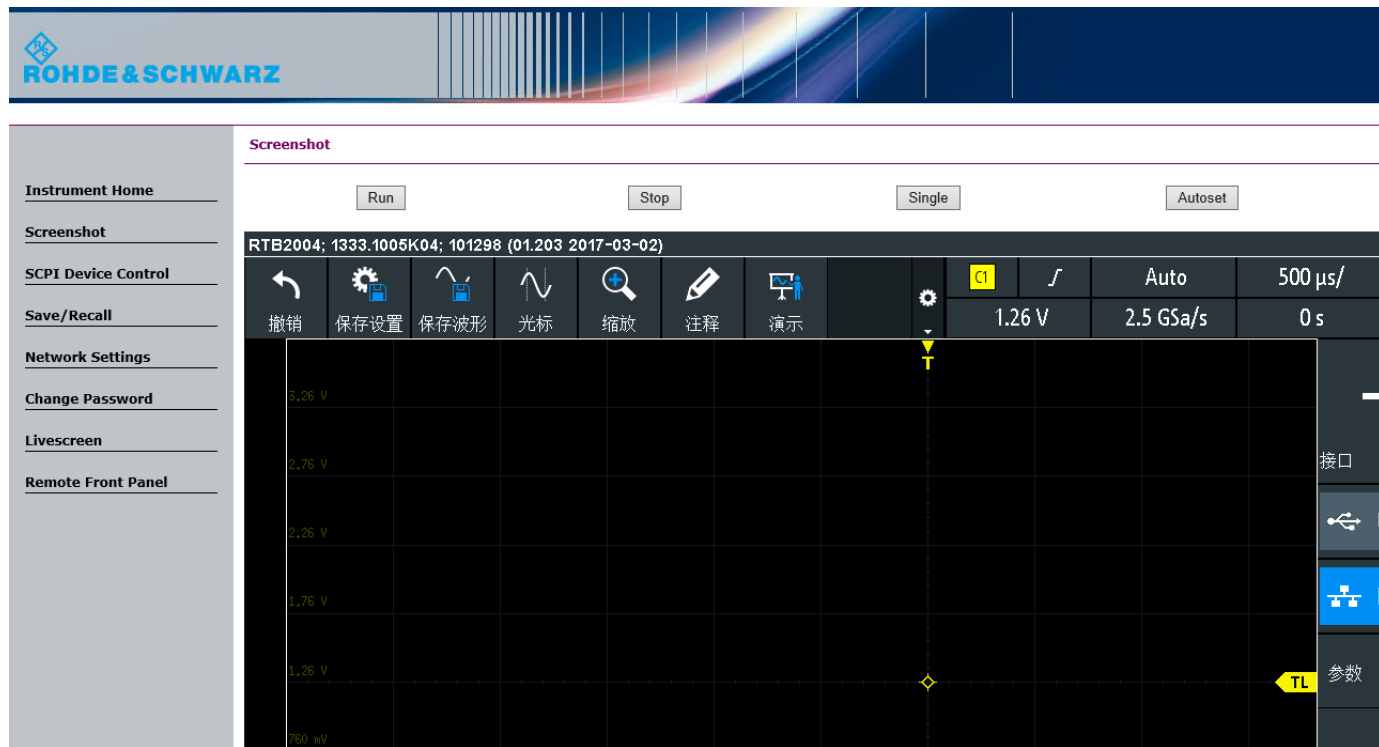
<b>Manufacturer:</b>	Rohde&Schwarz	<b>Ethernet Port</b>	
<b>Device Class:</b>	Oscilloscope	<b>Description:</b>	Rohde&Schwarz RTB2004 - 101298
<b>Device Type:</b>	RTB2004	<b>Host Name:</b>	R-RTB2004-00000.local
<b>Serial Number:</b>	1333.1005k04/101298	<b>MAC Address:</b>	00-90-B8-1F-04-72
<b>Firmware Version:</b>	01.203	<b>IP Configuration:</b>	Manual
		<b>IP Address:</b>	192.168.1.9
		<b>Subnet Mask:</b>	255.255.255.0
		<b>Default Gateway:</b>	192.168.1.1
		<b>DNS Server:</b>	0.0.0.0
		<b>IP Port:</b>	5025
		<b>Transfer Mode:</b>	1000 Mbps - Full Duplex
		<b>VISA Resource Name:</b>	TCPIP::192.168.1.9::INSTR
		<b>Device Identification:</b>	<input type="radio"/> On <input checked="" type="radio"/> Off
		<b>USB Port</b>	
		<b>Vendor ID:</b>	0AAD (hex)
		<b>Product ID:</b>	01D6 (hex)



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设备程控主页

## 新的维度——灵活的远程连接方式（以太网）



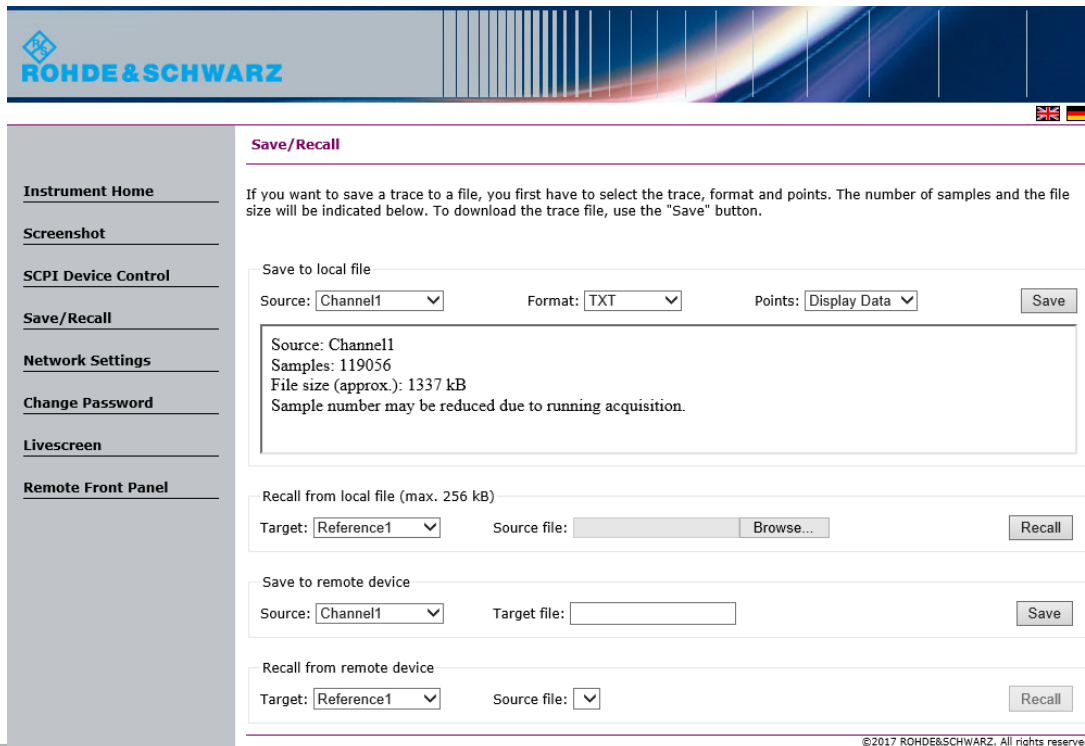
截屏  
简单控制功能

## 新的维度——灵活的远程连接方式（以太网）

The screenshot shows the 'SCPI Device Control' web interface. On the left is a navigation menu with options: Instrument Home, Screenshot, SCPI Device Control (selected), Save/Recall, Network Settings, Change Password, Livescreen, and Remote Front Panel. The main content area is titled 'SCPI Device Control' and contains a paragraph of text explaining that the device can be controlled with special commands (SCPI - Standard Commands for Programmable Instruments) and that error messages can be requested separately. Below the text is a 'Command:' input field with a 'Send' button. Underneath are two buttons: 'Last Error Message' and 'All Error Messages'. At the bottom is a large 'Response:' text area. The interface also features the Rohde & Schwarz logo and flags for the UK and Germany.

SCPI程控功能  
页面

## 新的维度——灵活的远程连接方式（以太网）



The screenshot displays the 'Save/Recall' section of the R&S RTB2000 web interface. The interface includes a navigation sidebar on the left with options: Instrument Home, Screenshot, SCPI Device Control, Save/Recall (highlighted), Network Settings, Change Password, Livescreen, and Remote Front Panel. The main content area is titled 'Save/Recall' and contains the following sections:

- Save to local file:** Includes dropdowns for Source (Channel1), Format (TXT), and Points (Display Data), along with a Save button.
- Summary:** A text box showing: Source: Channel1, Samples: 119056, File size (approx.): 1337 kB, and Sample number may be reduced due to running acquisition.
- Recall from local file (max. 256 kB):** Includes a Target dropdown (Reference1), a Source file input field with a Browse... button, and a Recall button.
- Save to remote device:** Includes a Source dropdown (Channel1) and a Target file input field with a Save button.
- Recall from remote device:** Includes a Target dropdown (Reference1) and a Source file dropdown with a Recall button.

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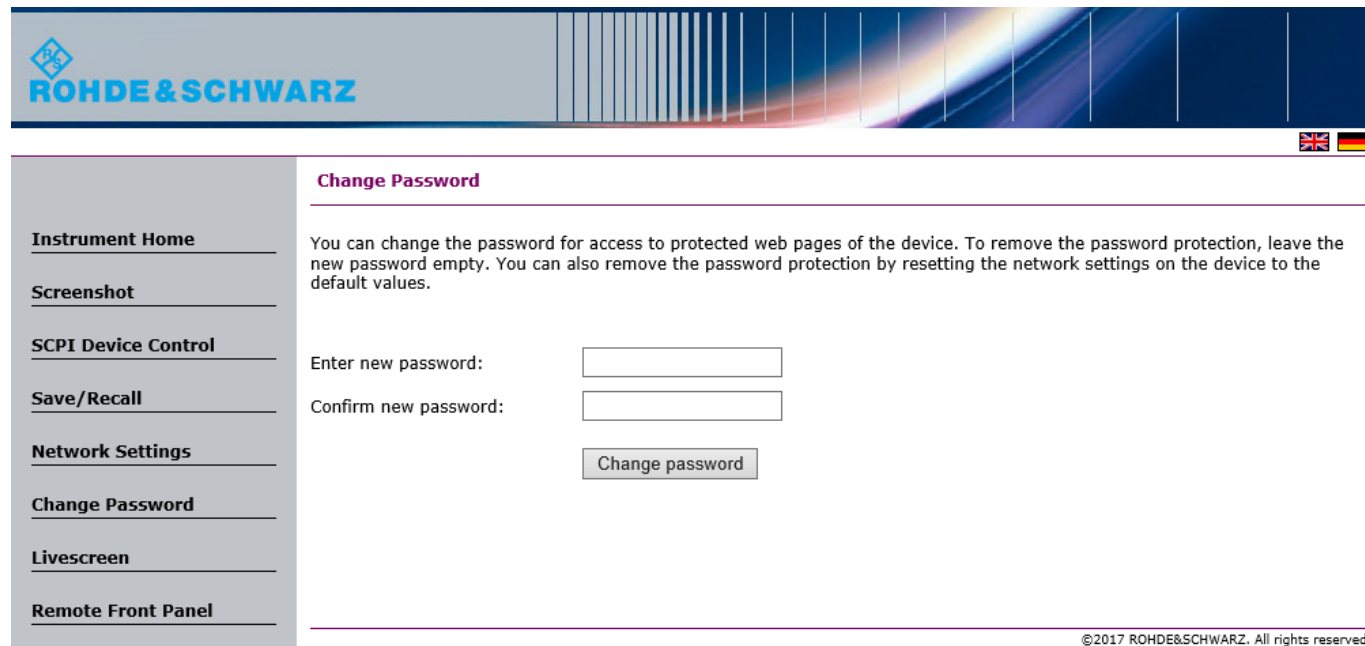
保存/读取波形  
文件页面

## 新的维度——灵活的远程连接方式（以太网）

The screenshot shows the 'Network Settings' page of the R&S RTB2000 web interface. On the left is a navigation menu with options: Instrument Home, Screenshot, SCPI Device Control, Save/Recall, Network Settings (highlighted), Change Password, Livescreen, and Remote Front Panel. The main content area is titled 'Network Settings' and includes a warning: 'Warning: Changing the network settings may result in loss of connection!'. Below the warning are several configuration fields: Host Name (R-RTB2004-00000), Description (empty), IP Configuration (Manual selected), IP Address (192.168.1.9), Subnet Mask (255.255.255.0), Default Gateway (192.168.1.1), DNS Server (0.0.0.0), IP Port (5025), and Transfer Mode (Auto). At the bottom are 'Submit' and 'Reset' buttons. The top right of the interface has a 'Print view' link and flags for UK and Germany. The footer contains the copyright notice: '©2017 ROHDE&SCHWARZ. All rights reserved.'

示波器网络设置页面

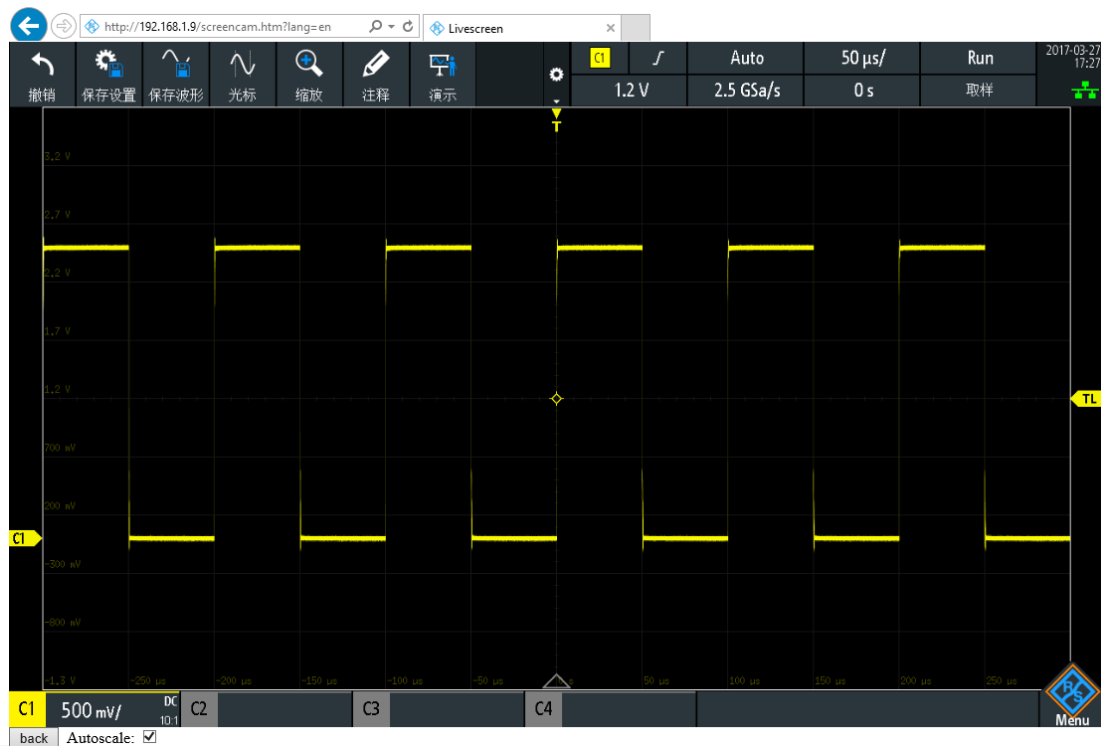
## 新的维度——灵活的远程连接方式（以太网）



The screenshot displays the R&S RTB2000 web interface. At the top left is the R&S logo and the text 'ROHDE & SCHWARZ'. Below this is a navigation menu with the following items: 'Instrument Home', 'Screenshot', 'SCPI Device Control', 'Save/Recall', 'Network Settings', 'Change Password', 'Livescreen', and 'Remote Front Panel'. The 'Change Password' page is active, showing a heading 'Change Password' and a paragraph: 'You can change the password for access to protected web pages of the device. To remove the password protection, leave the new password empty. You can also remove the password protection by resetting the network settings on the device to the default values.' Below this text are two input fields: 'Enter new password:' and 'Confirm new password:'. A 'Change password' button is located below the second input field. In the top right corner of the interface, there are flags for the United Kingdom and Germany. At the bottom right of the page, the copyright notice reads: '©2017 ROHDE&SCHWARZ. All rights reserved.'

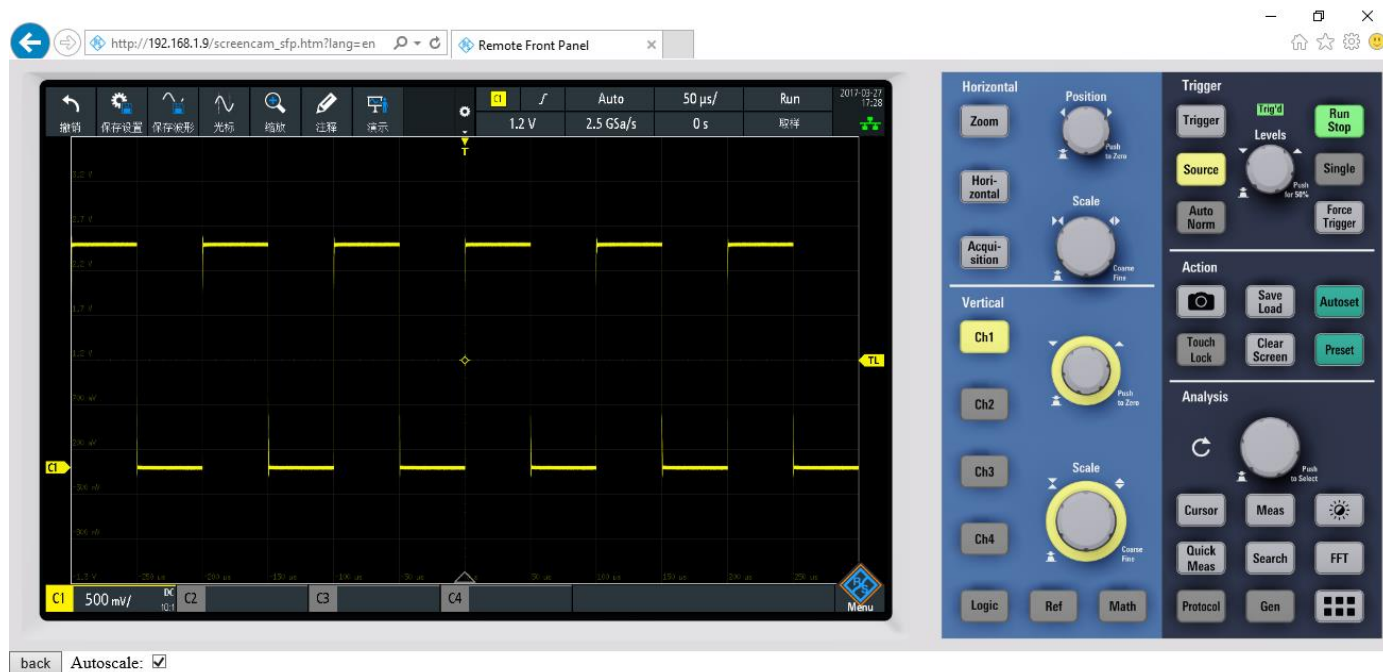
修改示波器密码页面

## 新的维度——灵活的远程连接方式（以太网）



示波器屏幕实时监控页面

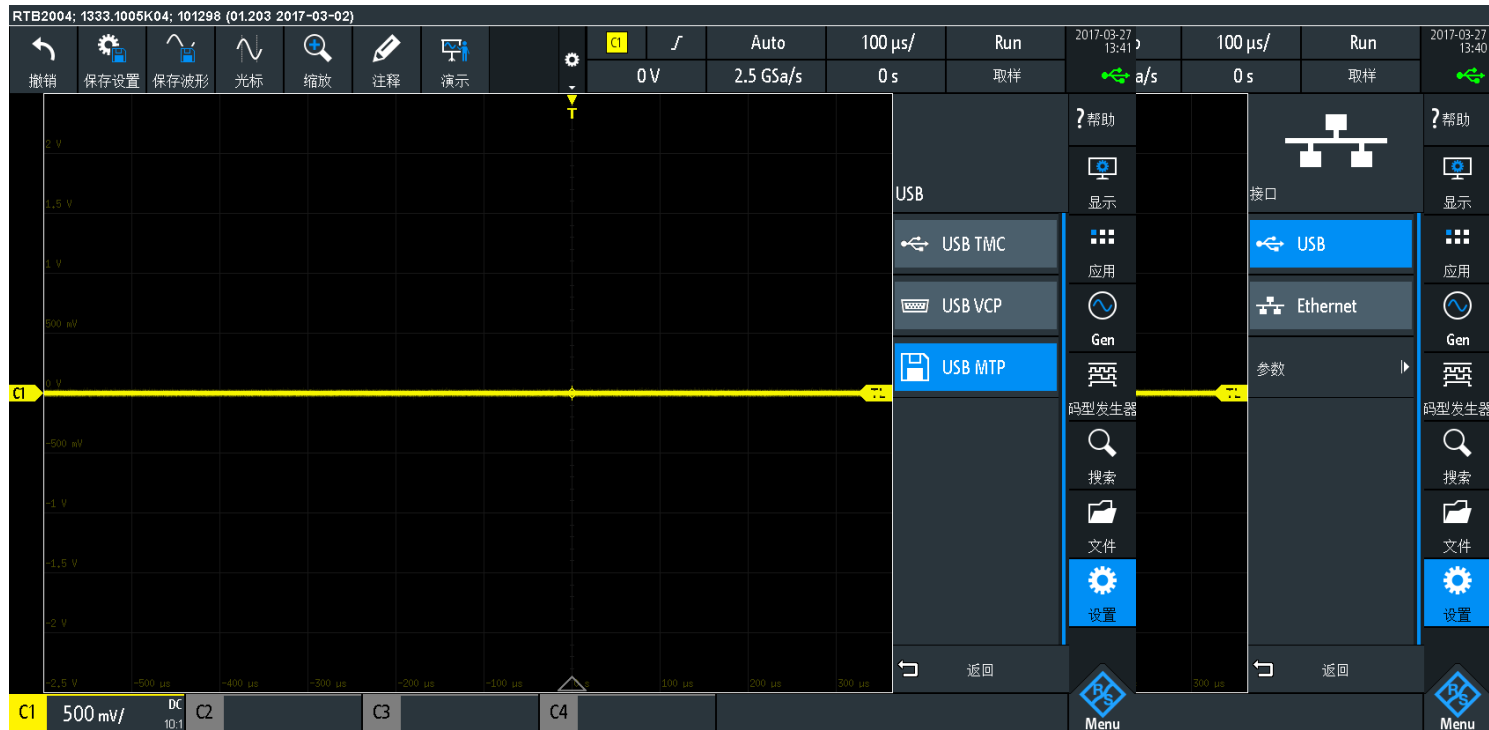
## 新的维度——灵活的远程连接方式（以太网）



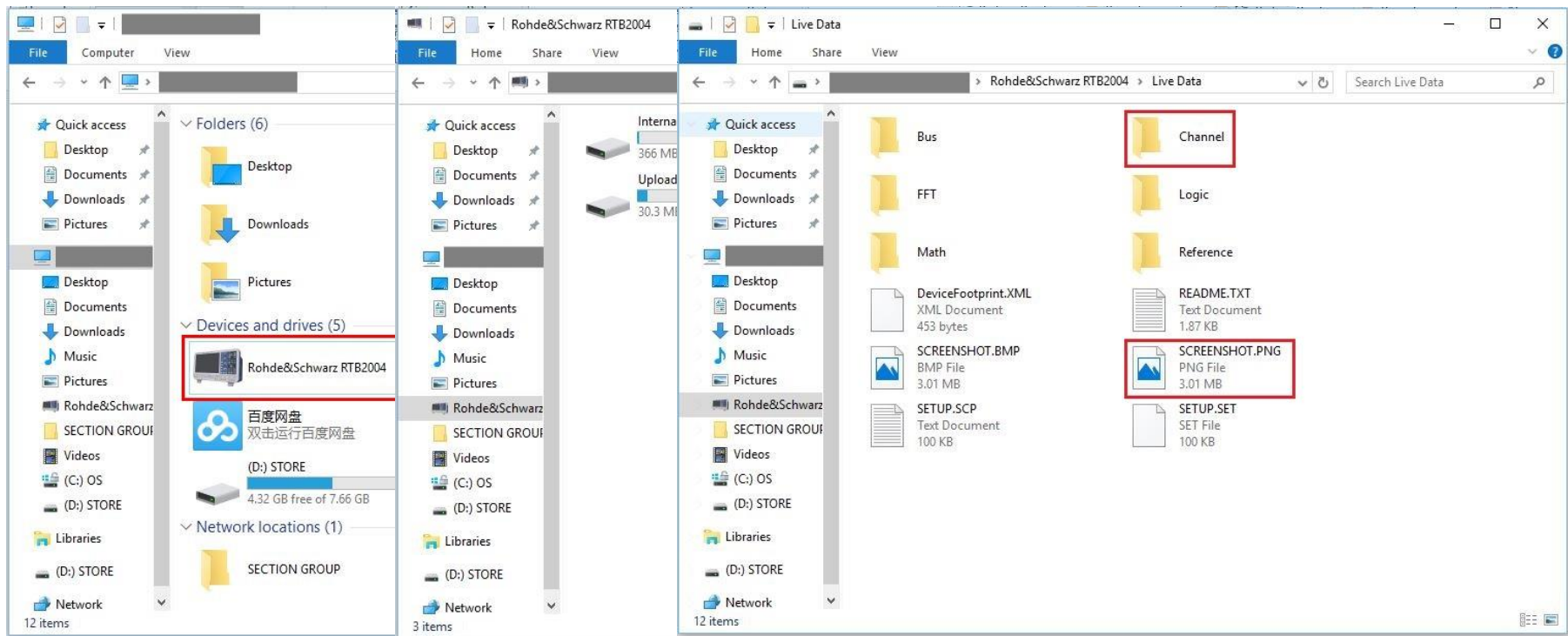
远程控制页面



## 新的维度——灵活的远程连接方式（USB）

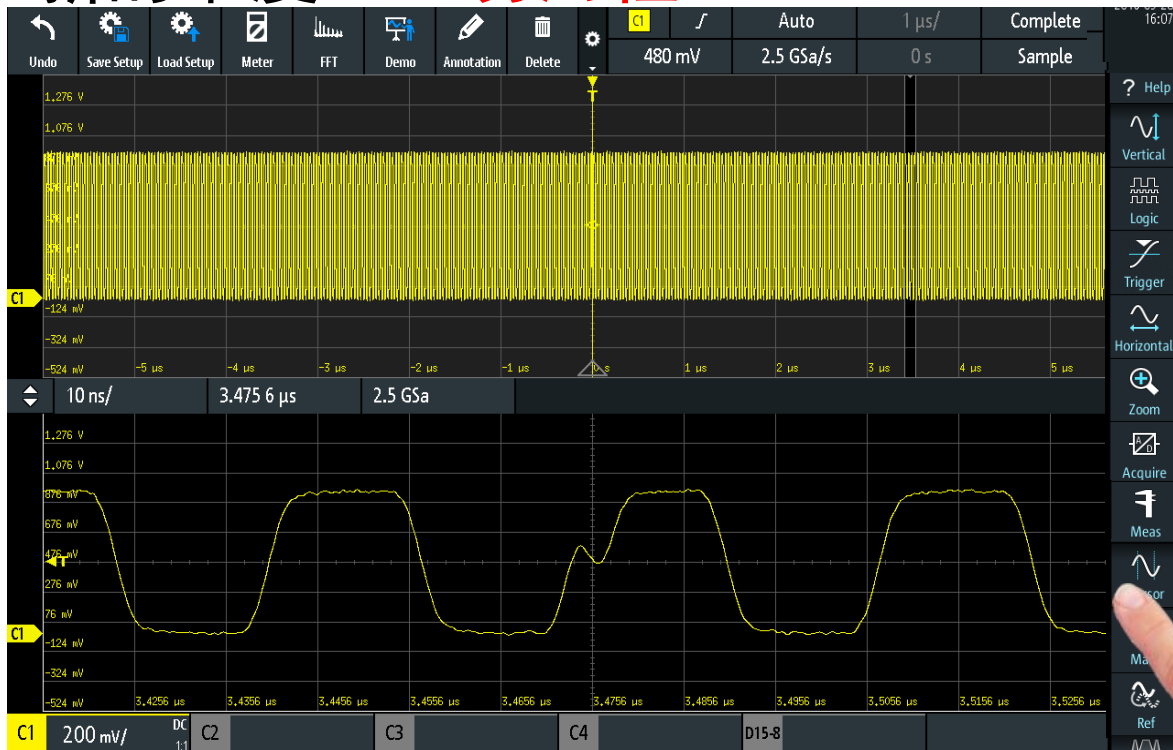


## 新的维度——灵活的远程连接方式（USB）

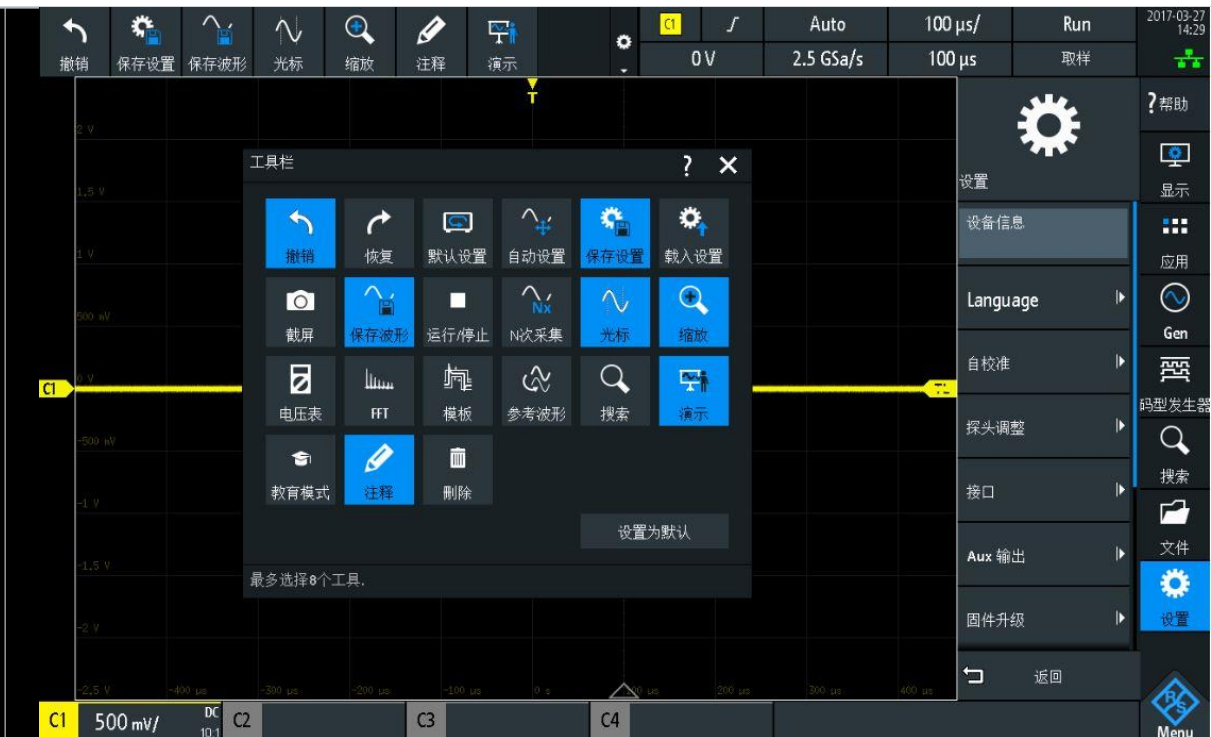


# R&S® RTB2000

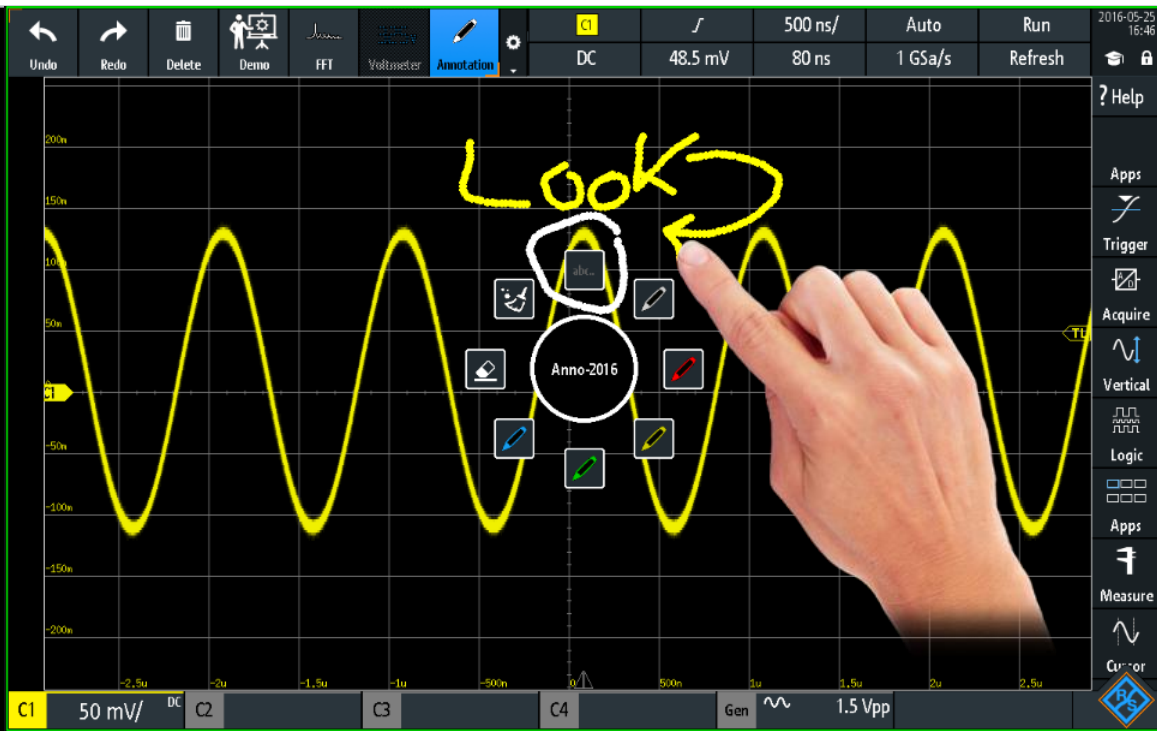
## 3.11新的维度——易用性



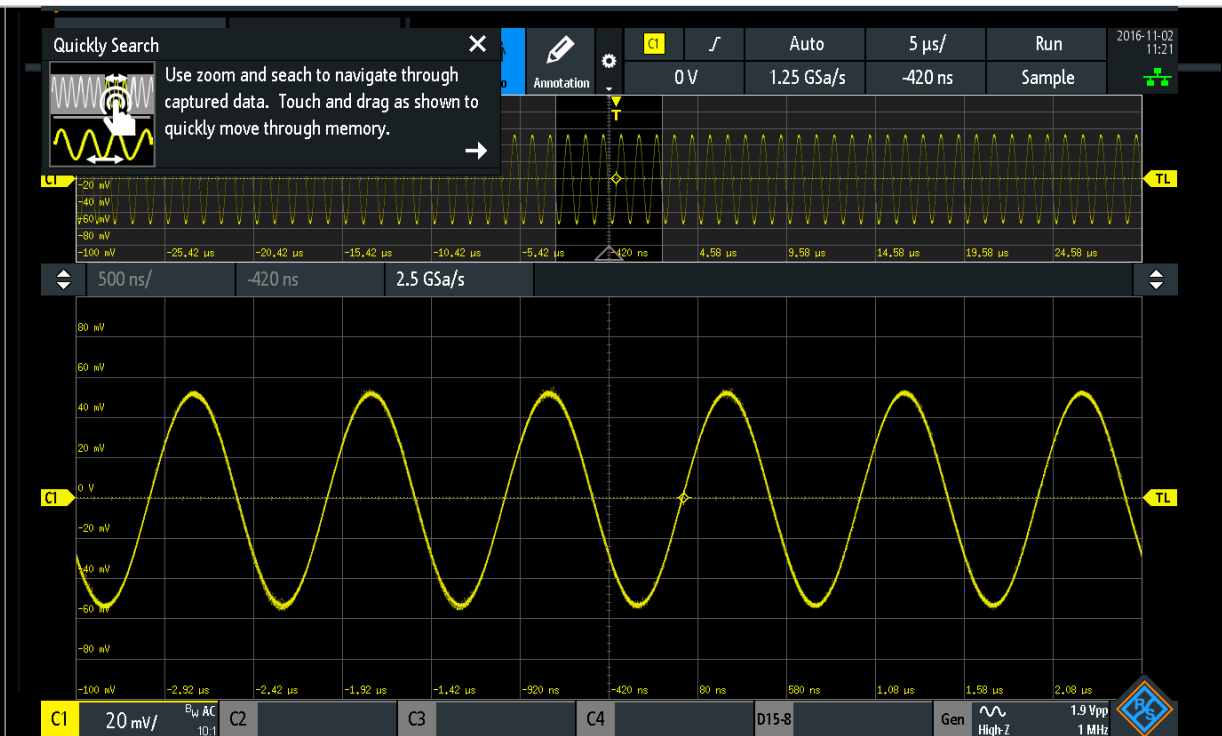
## 新的维度——易用性



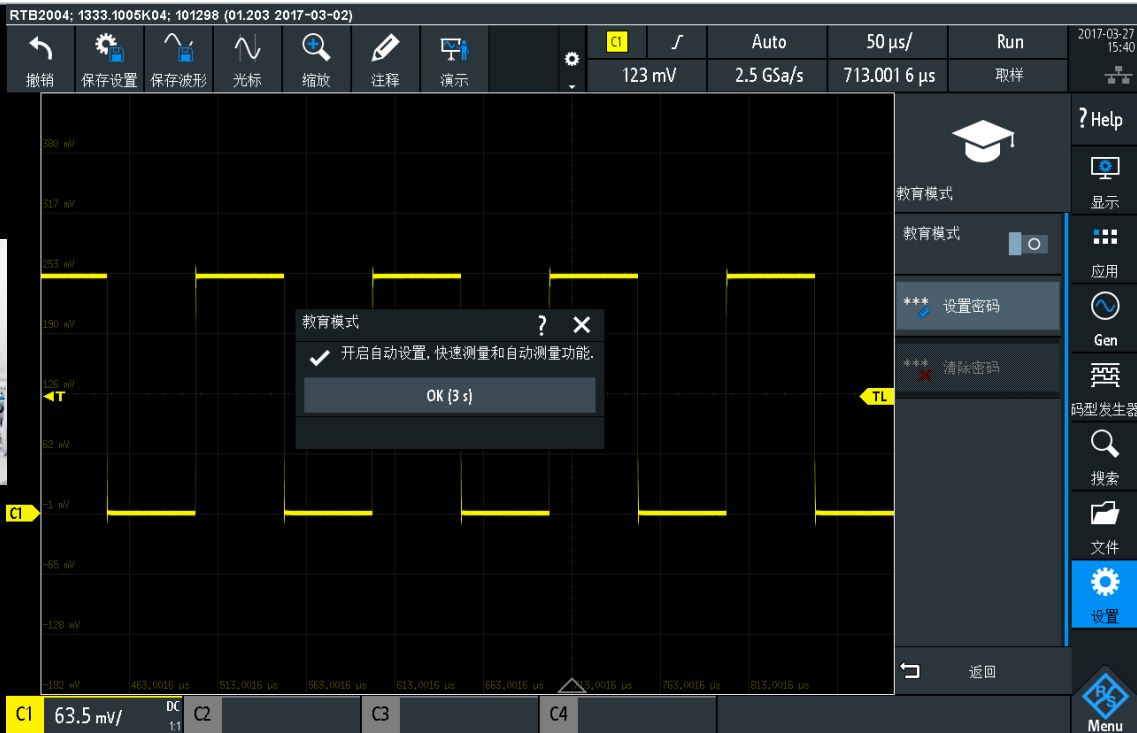
## 新的维度——易用性



## 3.12新的维度——演示功能



## 3.13新的维度——教育模式



## 四、屏幕尺寸比较

10.1“ 高分辨率电容触摸屏，支持手势操作

- 高达2倍的显示区域
- 高达10倍的显示像素
- 智能电容触摸屏
  - 支持手势操作
- 常见的交互界面布局
- 优化波形显示

R&S®RTB2000		10.1“ (1280x800 像素)
K	X2000	8.5“ (800x480 像素)
T	2000B	7“ (432x240 像素)



# The R&S®RTB2000

## 配置信息

### 第一步、选择基本型号



2 通道 R&S®RTB2002

4 通道 R&S®RTB2004

### 第二步、选择带宽升级选项

70 MHz

100 MHz

200 MHz

300 MHz

R&S®RTB-B221

R&S®RTB-B222

R&S®RTB-B223

R&S®RTB-B241

R&S®RTB-B242

R&S®RTB-B243

### 第三步、选择选件

MSO 250 MHz

波形发生器

I2C/SPI

UART/RS-232/  
RS-422/RS-485

CAN/LIN

历史和分段存储

R&S®RTB-B1

R&S®RTB-B6

R&S®RTB-K1

R&S®RTB-K2

R&S®RTB-K3

R&S®RTB-K15

### 第四步、选择探头

### 第五步、选择附件

RTB2000升级满足您需求的增长