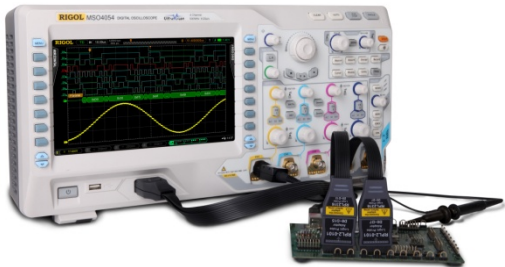


RIGOL

用户手册 User's Guide



RPL2316 逻辑探头 RPL2316 LOGIC PROBE

产品网址：www.prbtek.com © 2013 RIGOL Technologies, Inc. All Rights Reserved. 咨询电话：4000-029-016

一般安全概要

- ✚ 正确的连接与断开探头。
- ✚ 使用探头之前，请连接探头适配器。
- ✚ 遵循所有终端额定值。
- ✚ 电源接通后，请勿接触外露的线路和元件。
- ✚ 怀疑产品出故障时，请勿进行操作。
- ✚ 切勿开盖操作。
- ✚ 请勿在易燃易爆的环境下操作。
- ✚ 请勿在潮湿的环境下操作。
- ✚ 请保持产品表面干燥。
- ✚ 请注意搬运安全。

产品简介

RPL2316 是一款高性能逻辑探头，可将待测系统上的数字总线及信号连接至 **RIGOL** MSO4000 系列数字示波器。

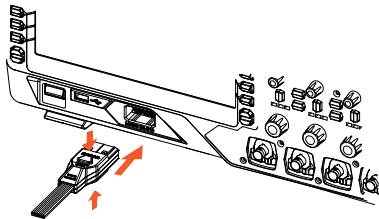
RPL2316 的 16 个数字通道分为两个支线端，称为通道组。每个通道组包含 8 个信号通道 (D0-D7 和 D8-D15) 和 12 个接地通道。在探头适配器的标签上所有通道都用

不同的颜色和数字（或字母）清晰标示，便于区分不同的通道。RPL2316 为每个通道组标配 8 根前端信号引线 and 2 根接地引线，可用于灵活的连接被测信号和参考地，并提供更好的信号完整性。注意：在任何情况下都必须确保探头适配器与通道组的可靠连接。



逻辑探头的使用方法

1. **连接 RPL2316 至示波器：**上下按压逻辑探头单线端两侧的按钮，按照下图箭头所指方向垂直连接至 MSO4000 系列数字示波器前面板的 [LOGIC D0-D15] 接口。注意：“**RIGOL**” 字样朝上，标签朝下。



2. **连接被测信号至 RPL2316：**用户可以根据测试需要将任意数量(≤ 16) 的被测信号连接至 RPL2316，连接时需要注意，输入信号的幅度不能超过探头的最大工作电压范围。为适应不同的应用场合，RPL2316 提供了

三种与被测信号的连接方法。

- ◆ 方法一：用户可将 RPL2316 与预留在待测设备上的双排金针直接连接，此时，RPL2316 必须保留适配器的连接。如图 1 所示。
- ◆ 方法二：用户可通过前端引线单独连接各个被测信号，此时 RPL2316 必须保留适配器的连接。通过前端引线上的色环以及适配器上的颜色信息可方便地识别每个信号所对应的通道号，如图 2 所示。

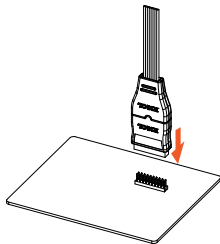


图 1

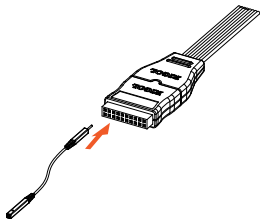


图 2

- ◆ 方法三：在方法二的基础上，可为前端引线连接上探头测试夹，

然后通过测试夹内的金属钩连接被测信号节点，如图 3 所示。



图 3

- 3. 设置探头：**按示波器前面板上的 **LA** 按键进入探头设置菜单，用户可在该菜单下查看和设置如下参数：阈值电平(D0-D7 与 D8-D15 分组阈值电平独立调节)、波形大小(应用于所有通道，其中 L 选项只在屏幕活动通道数不多于 8 时可用)、通道标签和数字总线(提供 2 条独立的专用数字总线，可分别设置时钟、位宽、显示格式及噪声抑制等，如需更多灵活功能请参考并选用通用总线)。
- 4. 功能检查：**完成上述操作后，被测信号将显示在与连接相对应的通道上。如果看不到活动信号，请调节示波器选择合适的触发方式和时基等常规设置。如果仍然看不到活动信号，请再次检查电气连接和参数设置，或者尝试使用其他探头(如模拟探头)来验证测试点的信号状态。

探头指标

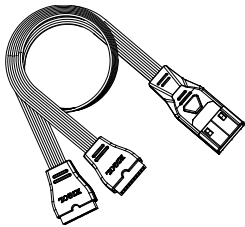
输入通道数	16
阈值范围	$\pm 20V$
阈值精度	$\pm 100mV + \text{阈值的 } 3\%$
最大摆动电压	$\pm 40V$
最小摆动电压	500mV
最小可检测脉宽	5ns
输入阻抗	101k Ω
探头负载	约 8pF
探头电缆长度	约 100cm
前端引线长度	约 15cm
操作环境	0~50 $^{\circ}C$, 0~80%RH
存放环境	-20 $^{\circ}C$ ~60 $^{\circ}C$, 0~90%RH

产品网址：www.prbtek.com 咨询电话：4000-029-016

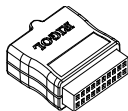
附件

编号	名称描述	数量
1	主线	1
2	逻辑探头适配器	2
3	引线	20 (2×10)
4	探头钩	20
5	中英文用户手册	1
6	RPL2316 便携软包	1

附件示意图



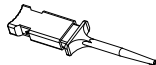
主线



逻辑探头适配器



引线



探头钩

产品网址：www.prbtek.com 咨询电话：4000-029-016

联系我们

如您在使用此产品或本手册的过程中有任何问题或需求, 可与 **RIGOL** 联系:

电子邮箱: service@rigol.com

网址: www.rigol.com

General Safety Summary

- ✚ Connect and disconnect the probe properly.
- ✚ Connect the adaptor before using.
- ✚ Observe all terminals ratings.
- ✚ Do not touch exposed connections and components after power on.
- ✚ Do not operate with suspected failures.
- ✚ Do not operate without covers.
- ✚ Do not operate in an explosive atmosphere.
- ✚ Do not operate in wet conditions.
- ✚ Keep product surface clean and dry.
- ✚ Pay attention to handling safety.

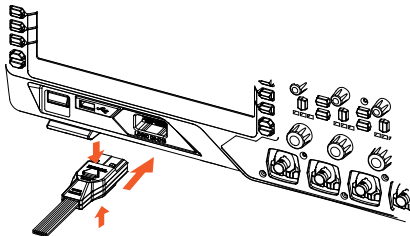
Product Overview

Being a high performance logic probe, RPL2316 connects the digital buses and signals under test to the MSO4000 series digital oscilloscope. RPL2316 separates 16 digital channels into two branch headers, called channel group. Each header includes 8 signal channels (D0-D7 and D8-D15) plus 12 ground channels. All the channels are marked with different colors and numbers (or letters) on the probe adaptor label to identify different channels. RPL2316 provides 8 signal leads and 12 ground leads for each header to realize flexible connection of signals and reference ground and provide better signal integrity. Note: in any case, make sure that the connection between probe adaptor and the channel group is reliable.



The Using Method of the Logic Probe

1. **Connect RPL2316 to the oscilloscope:** push the buttons on both sides of the logic probe single head and connect it (with “**RIGOL**” facing upward and the label facing downward) to the digital channel input terminal [**LOGIC D0-D15**] at the front panel of the MSO4000 series digital oscilloscope in the arrow direction as shown in the figure below.



2. **Connect the signals under test to RPL2316:** users can connect any number (≤ 16) of the signals under test to RPL2316 in according to the test need. Make sure that the amplitude of the input signal should not exceed the maximum working voltage range while connecting. RPL2316 provides three connection methods with the signals under test for different applications.
- ◆ Method one: you can connect RPL2316 to the two rows of pins on the device under test directly. At this point, the probe adaptor must be connected as shown in figure 1.
 - ◆ Method two: you can connect the signals under test through leads separately. At this point, the probe adaptor must be connected as shown in figure 2. You can easily identify the corresponding channel of each signal by the color rings on the leads and the color information on the adaptor.

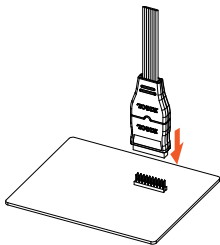


Figure 1

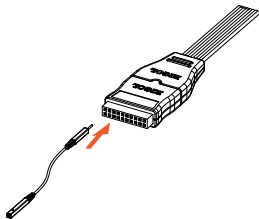


Figure 2

- ◆ Method three: on the basis of method two, you can connect a grabber to each lead and connect it to the device under test as shown in figure 3.



Figure 3

- 3. Set the probe:** press **LA** at the front panel of the oscilloscope to enter the probe setting menu. Users can view and set the following parameters under this menu: threshold level (the threshold levels of D0-D7 and D8-D15 can be adjusted independently), waveform size (applicable to all the channels; wherein, item L is only available when the number of active channels is no more than 8), channel label and digital bus (provide 2 independent digital buses to set various parameters respectively, such as the clock, bit width, display format and noise rejection; for more flexible functions, use common bus).
- 4. Function Check:** after finishing the above operations, the signal under test will be displayed on the corresponding channel. If no active signal is displayed, please adjust the oscilloscope to select proper general settings (such as the trigger mode and timebase). If active signal is still not displayed, please check the electric connection and parameter settings again or please try to use other probe (such as analog probe) to check the signal state of the test point.

Probe Specifications

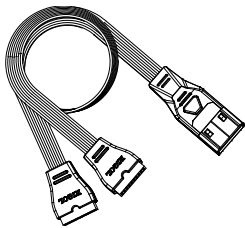
Input Channels	16
Threshold Range	$\pm 20V$
Threshold Accuracy	$\pm 100mV + 3\%$ of threshold setting
Max Voltage Swing	$\pm 40V$
Min Voltage Swing	500mV
Min Detectable Pulse Width	5ns
Input Impedance	101k Ω
Probe Load	About 8pF
Cable Length	About 100cm
Lead Length	About 15cm
Operation Environment	0~50°C, 0~80%RH
Storage Environment	-20°C~60°C, 0~90%RH

产品网址：www.prbtek.com 咨询电话：4000-029-016

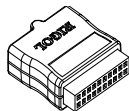
Accessories

Item	Description	Quantity
1	Main Cable	1
2	Logic Probe Adaptor	2
3	Lead	20 (2×10)
4	Grabber	20
5	Chinese and English User's Guide	1
6	RPL2316 Soft Carrying Bag	1

Accessories Sketch Map



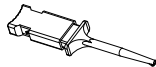
Main Cable



Logic Probe Adaptor



Lead



Grabber

Contact Us

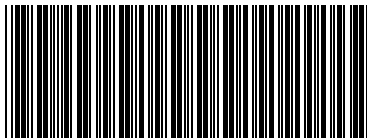
If you have any problem or requirement when using our products or this manual, please contact RIGOL Technologies, Inc.

E-mail: service@rigol.com

Website: www.rigol.com

UGE20X03-1110

Aug. 2014



ZN1020002292