USB Loopback Plug Users Guide

(Model PMUSB01)

Introduction

When used with the PassMark BurnInTest software, the USB Loopback plug can be used to test that PC USB ports function correctly. In particular it is possible to verify that.

- The USB port is powered
- That data can be sent and received from the port
- That data can be transferred without error
- The system remains stable under long periods of load
- USB support in Windows has been correctly installed.

General Notes

Compatibility

Window 98, ME, 2000 and XP are supported.
Window 95 and NT4 are **not** supported.
In order to use the plugs BurnInTest Professional version 2.6 or above is required.

Version notes

V2.0.0.0 (30 March 2004):
- Improved Support for surprise removal (W2K/XP)
- Fixed power management issues, including allowing laptops to suspend.
- Suspend/Resume issue fixed with Open Devices (W2K/XP)
- Fixed an issue with the write timeout.

Recommended use with BurnInTest V4.0 build 1011 or above.

V1.0.0.0 (30 April 2002): Initial version.

USB Hubs

While the USB loopback plug will work when connected via a hub, direct connection is the preferred method of connection when testing a computer system. Having a direct connection eliminates the hub as a point of failure and simplifies trouble shooting a computer system. If the aim of the testing is to test maximum load handling capability of a USB port or to test the hub hardware itself, then connection via a hub may be preferable.

Cabling

Select a quality full speed, shielded, USB cable when testing. Note that some of the cheaper USB cables are not shielded and thus are not recommended. The cable must be shorter than the 5m allowed in the USB standard. If a USB connection is required beyond 5m one or more hubs are required to extend a USB connection.

Multiple USB plugs

Multiple USB plugs can be connected and simultaneous testing carried out.
Each USB plug is unique and has its own serial number. For this reason the windows plug and play software will attempt to re-install the drivers every time a new Loop back plug is connected. If you are testing with a large number of plugs it can be easier to copy the contents of the device driver floppy disk to your hard disk before installing the first plug. It is possible to view the serial number of each plug from within BurnInTest Professional.

Note that the USB specification allows a maximum of 5 hubs and a maximum of 127 devices.

Speed

Error free transfer speeds of around 95 - 100kbytes/sec can be expected on a system that is functioning correctly.

Windows2000 Installation

Before Installation (Upgrades only)

If you are upgrading the USB Loopback Plug device drivers, you must first uninstall the old device drivers. To do this you should connect the USB Loopback plug, from Windows "Start", select "Control Panel", select "System", select "Device Manager", select the "PassMark USB Loopback device" from the list of devices, select the "Driver" tab on the PassMark USB Loopback window, and click on "Uninstall".

Step1

With the computer turned on and running, connect the USB Loopback plug to any available USB port on the computer to be tested. The central red power light on the USB plug should illuminate when connected. The Windows, "Found New Hardware", window should be displayed.
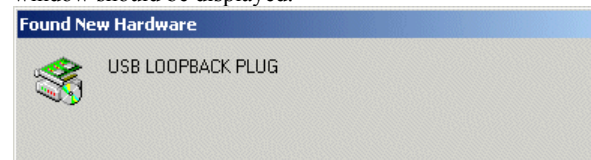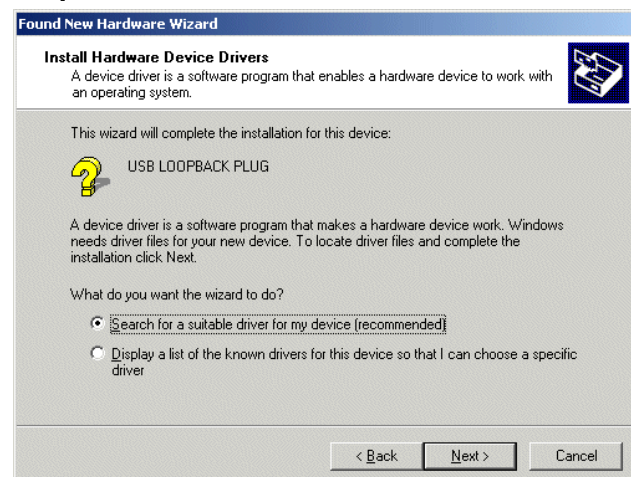

Step 2

The following window, should be displayed a few seconds after plugging in a USB loopback device for the first time. Click on Next.
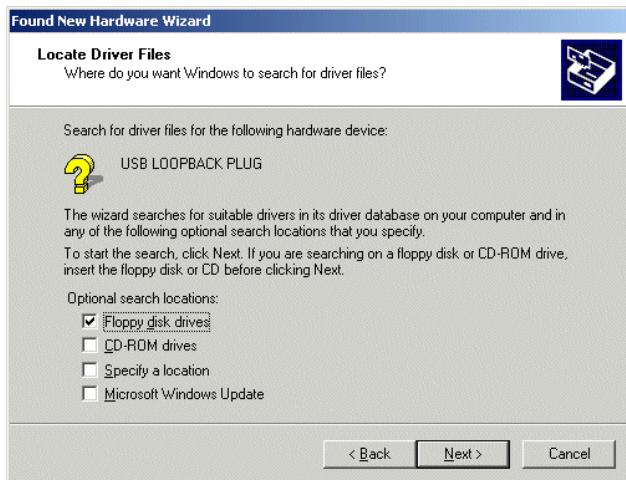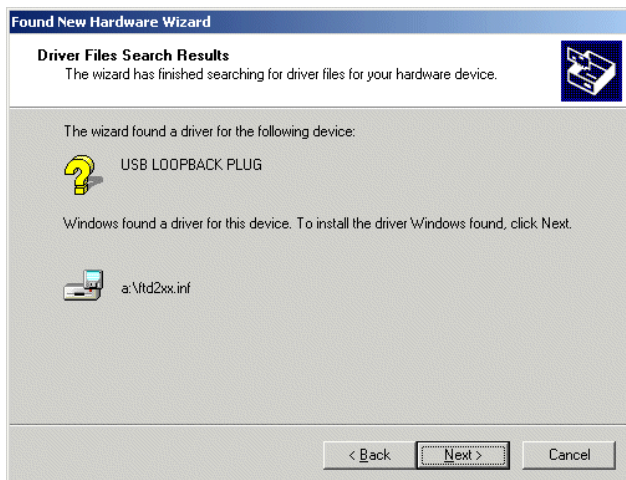

Step 3

Make sure that you have either the USB device driver floppy disk or drivers that you have downloaded from the PassMark web site available. Then select "Search for a suitable driver" and then click on Next.

Step 4

Select the location of the device driver (usually the floppy disk). Make sure the device driver floppy disk is in the drive, then click on Next.

Step 5

The driver should be found on the disk, then click on Next.

Step 6

After successful installation the following window should be displayed.

Windows 98/ME/XP Installation

The Windows 98 and ME install follows the same steps as the Windows 2000 install above. Even though the appearance of some of the windows is slightly different, the same selections need to be made.

Trouble shooting

Symptom: No red power light on USB plug
The USB connection from the computer should provide a 5 Volt power supply to the device. There is most likely a fault with the computer.

Symptom: Power but no Found New Hardware window
The basic USB device enumeration process could not be completed. This could be a fault in the Windows O/S installation or with the USB hardware in the computer.

Symptom: Slow transfer speed or errors
Again, this could be the USB hardware in the computer or be also caused by external interference, a poorly shielded cable or cable that is too long.

Technical Specifications

USB standard:	1.1 (but is forwardly compatible with USB 2.0)
Plug and play:	Compliant
Physical connector:	4 wire. (2 x Balanced Signal, 1 Voltage [VBUS], 1 Ground [GND])
USB Transfer modes:	Bulk
Voltage:	4.625V – 5.25V (Typical operation)
Current:	90mA (typical operation)
Clock speed:	6.00Mhz input to x8 multiplier
Device buffer:	384 bytes Rx, 128 byte Tx
Case:	High impact MABS plastic
Size:	65mm x 50mm x 20mm (2.5 x 2.0 x 0.8 inches)
Weight:	30.5g (1.1oz)
EMC standards:	AS/NZS 3548:1995, EC
Storage Temperature:	-20 ºC to + 70 ºC
Usage Temperature:	0 ºC to + 50 ºC

Red LED = Power
Green LED = Transmit data
Yellow LED = Receive data