

Using Ethernet with Amptek Digital Devices

This document applies to the Amptek DP5, PX5, DP5G, TB-5, Gamma-Rad5 and MCA-8000D

Amptek's family of Digital Pulse Processors (DPPs) and Multi-channel Analyzers (MCAs) utilize a 10base-T Ethernet controller.

1. Generally, these devices don't work well if the Ethernet port is connected directly to a PC – this doesn't seem to work reliably (a crossover cable would be required for this connection.) **For reliable operation, the Amptek device should be connected to an Ethernet switch.** The PC can be connected to the same switch or a different one, as long as the device is reachable.
2. The Ethernet implementation on the DP5 family only supports 10Base-T, so **the Ethernet switch must support 10Mb operation**, i.e. 10/100, 10/100/1000 etc.
3. The Amptek devices default to using a dynamic IP address. They expect a DHCP server to be present on the network, to assign the IP address. (Most home and many business networks use this type of network, with 'private' IP addresses, using NAT (Network Address Translation.) **In the absence of a DHCP server, the Firmware Manager application should be used to assign a fixed IP address.** [This is described below.]
4. If the device is set to use a dynamic IP address and no DHCP server is present, it may take up to 30 seconds for the device to stop attempting to get an IP address. If this happens, it will revert to a fixed IP address of 192.168.1.10. This IP address can be used to communicate with the device, but it is recommended that a fixed IP address be configured to avoid the long delay at power-up. [Note that if the PC is configured with an IP address on a different 'subnet', it will not be able to communicate with the Amptek device.]
5. The DppMCA application uses a broadcast protocol to search the network for Amptek devices. **However, on PCs which have multiple network adapters (Wifi + wired Ethernet, multiple wired Ethernet adapters, etc.), the application doesn't know which network to use – it may or may not select the correct network.** If your device isn't found, you may need to manually enter the IP address.
6. Amptek DP5 pulse processors can operate with either of two firmware families: FW5 or FW6. **Ethernet only operates on FW6.** [All other devices use FW6 and always support Ethernet.]
7. Amptek devices can operate via the Internet if appropriate routing and/or port forwarding is configured. UDP is used, which does not feature guaranteed delivery, so occasional dropouts should be expected if connecting over the Internet.
8. **DP5G/TB-5/Gamma-rad5:** These devices, in order to reduce power consumption, disable the Ethernet controller if a USB or RS232 connection is detected at power-up. **To configure Ethernet, disconnect USB and RS232 before applying power, then apply power with the AC adapter. After a few seconds, USB or RS232 can be connected.** This allows the DP5G/TB-5 to

boot with the Ethernet controller enabled, which in turn allows the Ethernet options to be adjusted.

Using the Firmware Manager Application to modify the IP address assignment

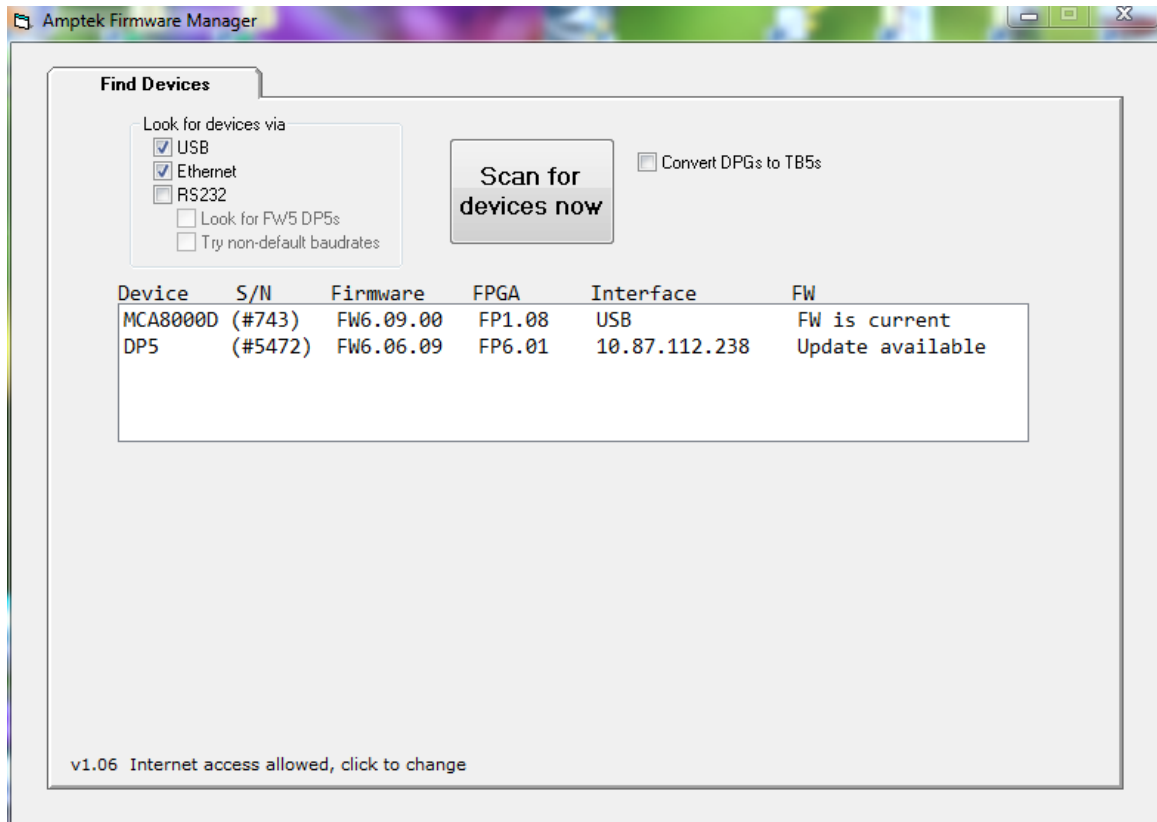
The Firmware Manager application can be found on the Amptek website download page:

<http://www.amptek.com/products/dp5-digital-pulse-processor-software/>

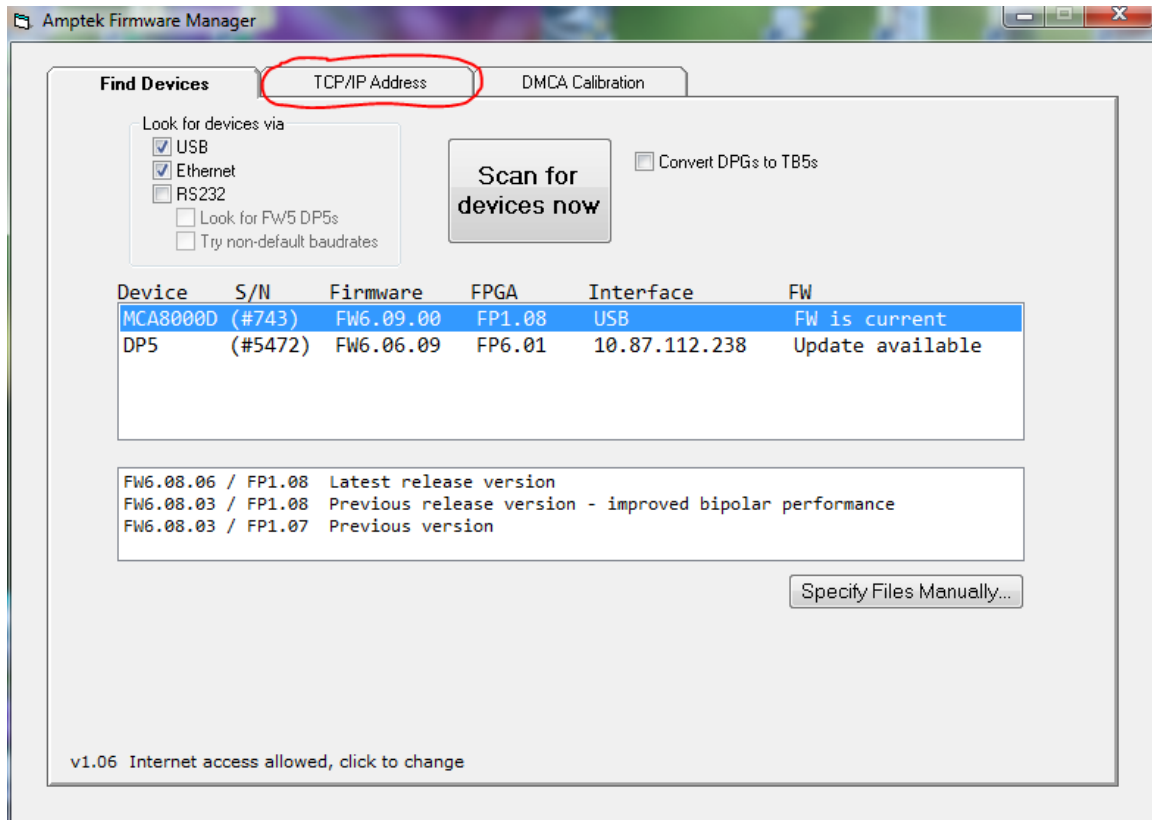
Here is a direct link to the download:

<http://www.amptek.com/firmware/firmwaremanager.zip>

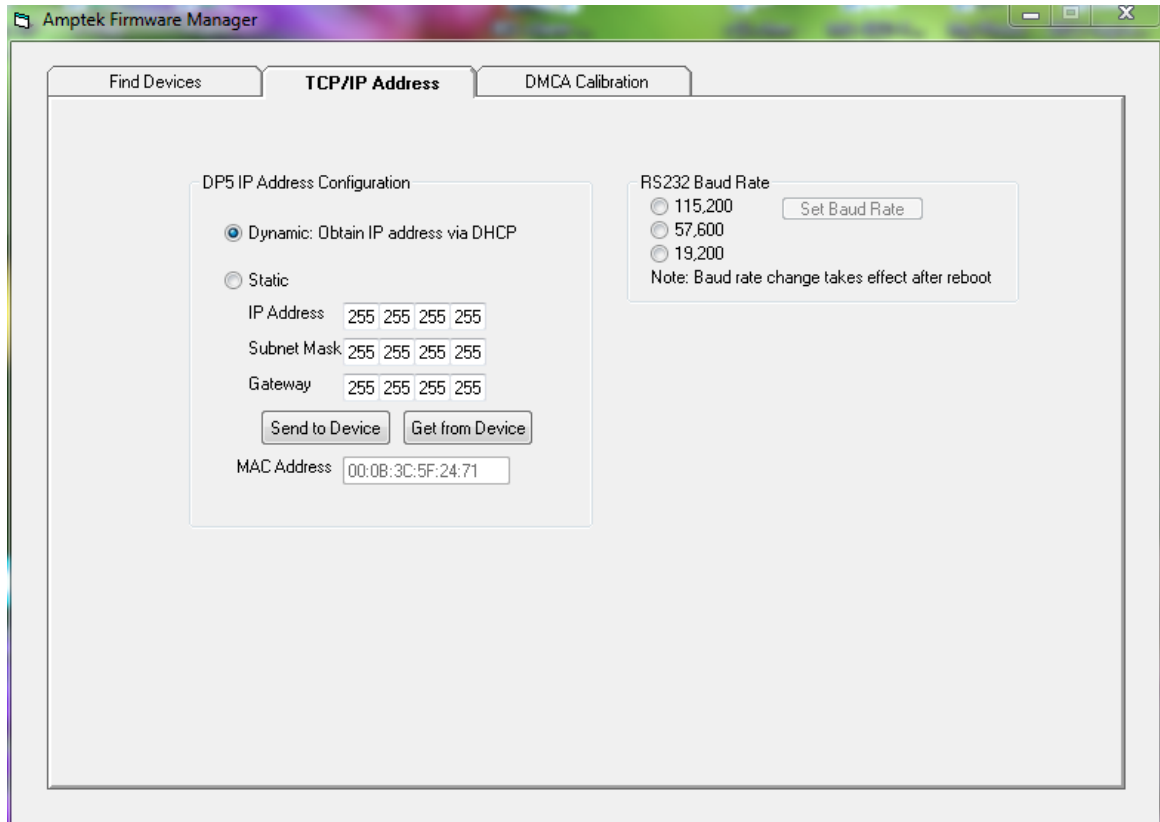
1. Download the ZIP file, unzip it, and run SETUP.EXE to install the application.
2. **Run the application.** The application can communicate with Amptek devices via USB, RS-232 or Ethernet. For USB, the USB driver must be installed. [This should happen automatically when an Amptek device is connected via USB, if the PC has Internet access.] The device will only be found via Ethernet if the device is on the same subnet as the PC, either because both were assigned dynamic IP address via a DHCP server, or because both were assigned fixed IP addresses.
3. Select the appropriate interface for the device, and click 'Scan for devices now. Here is an example where USB and Ethernet were selected; a USB MCA-8000D was found along with an Ethernet DP5:



4. **Click on the device to be configured.** This will reveal a 'TCP/IP Address' tab at the top (as shown below.) If the application is allowed access to the Internet, then it will also display available firmware which could be installed for the device. **Click on the 'TCP/IP Address' tab.**



5. **Set the IP Address configuration to Dynamic or Static.** ‘Dynamic’ requires the presence of a DHCP server on the network. **If ‘Static’ is selected, then the IP Address, Subnet Mask, and Gateway must be entered.** [If the PC and Amptek device are the only devices on the network, then a network address like 192.168.0.xx could be used, where xx=1 for the PC and xx=2 for the device. In this case, the subnet mask would be 255.255.255.0] **When the settings have been entered, click ‘Send to Device’.**



6. The new IP address settings will take effect after the next power cycle.