

# APPLICATION NOTE

## HOW TO SET UP APPH REMOTE CONNECTION

This application note describes the different ways to establish reliable remote connection to your APPH.

### INTRODUCTION

The APPH supports two different modes of operation:

- User mode via GUI (graphical user interface)
- ATE mode (control over SCPI commands)

In both cases, remote connection to the APPH is required. Three different physical interfaces are supported:

- Ethernet LAN
- USBTMC
- GPIB (optional)

### RECOMMENDATIONS

Depending on user requirements, one or several of the interfaces may be used. However, for optimum speed and flexibility we recommend to use Ethernet LAN interface.

### PHYSICAL INTERFACES

#### ETHERNET

The optimal way to communicate with the APPH is an ethernet connection. An RJ45 cable is used to connect the APPH to a network. In it's simplest form, the network consists of only the APPH and a single computer. Usually, a computer

is already connected to a local area network (LAN). In this case, the APPH is connected to that network (over a router).

The different participants of a LAN are distinguished by assigning unique Internet Protocol (IP) addresses to them.

#### DIRECT CONNECTION BETWEEN COMPUTER AND APPH USING FIXED OR FALLBACK IP

You can connect the instrument to your computer with the Ethernet cable without using a local area network with DHCP server. In this case, the IP address is assigned by the network controller (NIC) of your computer (i.e. by Microsoft Windows). If the APPH is still in the default configuration (DHCP), the NIC must be set to a fixed IP beginning with 169.254.xxx.xxx (excluding 169.254.1.0 and 169.254.254.255) and a network mask of 255.255.0.0 to match the fallback IP that the APPH will assign itself after network timeout (see Figure 1).

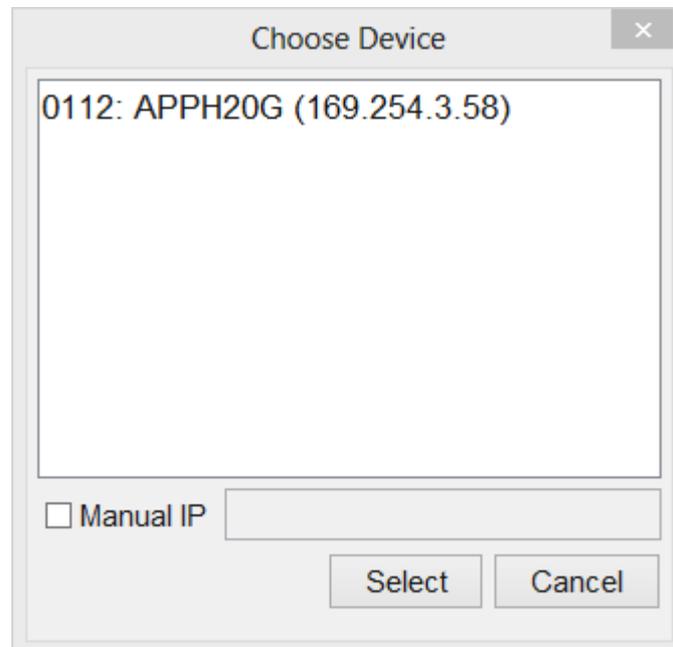


Figure 1 An APPH20G which has assigned itself a fallback IP.

In Windows 8, you can configure the NIC by right clicking the ethernet network system tray icon  and select "Open Network and Sharing Center". Then click on "Change adapter settings" on the left. Right click on the Ethernet network and select "Properties". In the Ethernet Properties dialog select the "Internet Protocol Version 4 (TCP/IPv4)" item from the list and click on the "Properties" button (see Figure 2). You can now change the IP configuration of the NIC to the above mentioned settings.

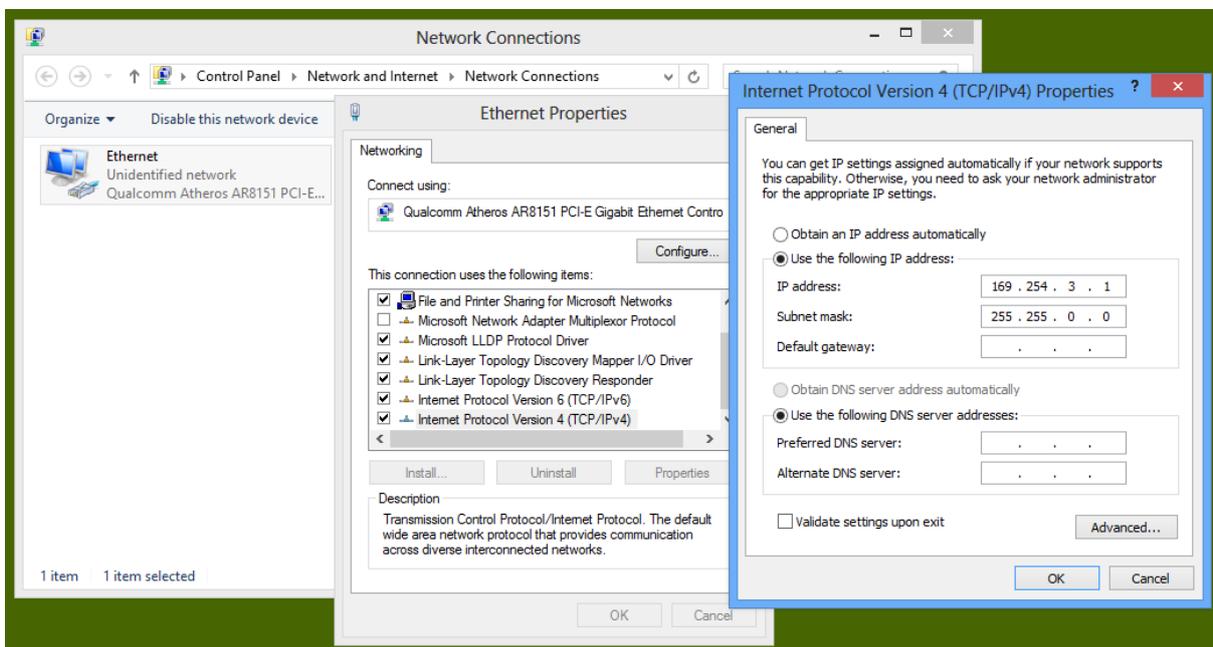


Figure 2 Configuring the NIC in Windows 8

The APPH will automatically choose an IP address according to ZEROCONF standard. Therefore, the exact fallback address can't be predicted.

Alternatively, you may assign the APPH a fixed IP.

After changing the NIC, you might have to renew the IP configuration by pressing the Windows Key, entering "cmd"+Enter and typing "ipconfig /renew" into the shell.

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LOCAL AREA NETWORK (LAN) WITH ROUTER AND DHCP SERVER (DYNAMIC IP ADDRESS)

Connect your APPH to the DHCP router with the provided ethernet cable and wait for the router to assign an IP. If the computer is in the same subnet, the GUI will automatically detect the instrument. Otherwise the IP has to be manually set in the connection dialog of the GUI as shown in Figure 3.

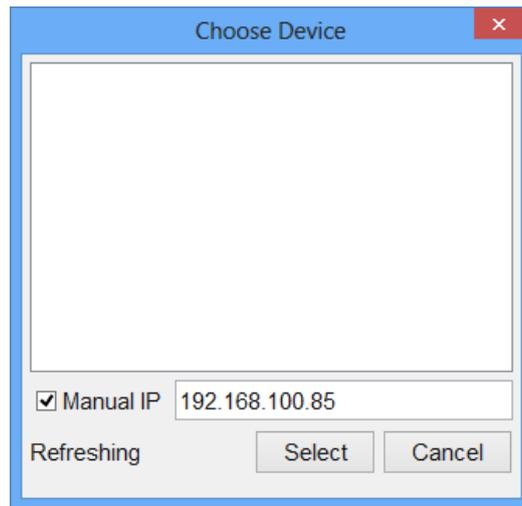


Figure 3 Manually setting the IP if the APPH is in a different subnet.

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#### LOCAL AREA NETWORK (LAN) WITH FIXED IP ADDRESS

The APPH can be configured to a fix IP. This can be done using the APPH GUI (*Device -> Network Configuration*). Make sure that the LAN router is configured correctly for this mode. It needs to meet the IP request of the APPH. If you are unsure, contact your network administrator.

#### USBTMC INTERFACE

The APPH uses native drivers from the [IVI foundation](#) for the USBTMC mode. The drivers support two modes of communication.

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#### VISA

You need to have an installation of the VISA drivers (for example NI VISA). The installed tools can then be used to communicate with the device.

#### ANAPICO REMOTE CONTROL API AND COMM LIBRARY

If you use the graphical user interface (GUI), the drivers have been installed as part of the installation package. You can then use the remote control API or the COMM library. Both can be downloaded at [anapico.com](http://anapico.com). Please contact Anapico for demo programs and libraries. There is also an ATE example that demonstrates how to use the COMM library with VBA.

#### GPIB INTERFACE

The GPIB interface can be used with the common VISA tools (for example NI VISA) or the Anapico COMM library. Please contact Anapico if you need further information.