

Tech Note: Setting up the PNT Remote Connection

This application note describes how to establish remote connection to the BNC Phase Noise Tester (Model 7300 Series).

Introduction

The PNT supports two modes of operation.

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

In both modes, remote connection to the PNT is required. Three physical interfaces are supported:

- Ethernet LAN
- USBTMC
- GPIB (optional)

Depending on the requirements, one or several of the interfaces may be used. The following sections describe connecting the PNT to the physical interfaces.

Ethernet

For optimum speed and flexibility, we recommend communicating with the PNT via Ethernet LAN interface. In its simplest form, the network consists of only the PNT and a single computer. Typically, a computer is already connected to a local area network (LAN), which is then cabled to the PNT. Alternatively, the PNT can be connected to the network via switch or router. An RJ45 cable is used to physically connect the PNT to the network. The components of a LAN are distinguished by assigning a unique Internet Protocol (IP) address to each component.

Direct Connection Between Computer and PNT with Fixed or Fallback IP

If the PNT is directly connected to the computer, this forms a very small LAN. In this case, the IP address is assigned by the network controller (NIC) of the computer.

The default configuration of the PNT address is via Dynamic Host Configuration Protocol Dynamic (DHCP): dynamic IP Address. 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. Also, set the network mask to 255.255.0.0 to match the fallback IP that the PNT will assign itself after network timeout. The PNT automatically chooses an IP address according to the ZEROCONF standard; the exact fallback address cannot be predicted. Alternatively, the PNT can be assigned a fixed IP address.

The following subsections describe connecting the PNT to the LAN with either a fixed or a dynamic IP address.

LAN with Router and DHCP Server (Dynamic IP Address)

Connect your PNT to the DHCP router with the provided Ethernet cable and wait for the router to assign an IP address.

Note: If the computer is in the same subnet, the GUI will automatically detect the instrument. Otherwise, the IP address will have to be manually configured.

LAN with Fixed IP Address

The PNT has to be configured to a fix IP, which can be done via the PNT GUI: on the screen, select **Device** and then select **Network Configuration**. Ensure that the LAN router is configured correctly for this mode. If uncertain, contact the network administrator.

USBTMC Interface

The PNT uses native drivers from the IVI foundation to interface in the USBTMC mode. The drivers support two modes of communication, which are described in the following subsections.

VISA

The VISA drivers must be installed, such as NI VISA. The installed tools can then be used to communicate with the PNT.

BNC Remote Control API and COMM Library

The drivers for the graphical user interface (GUI) are automatically installed as part of the installation package. You can then use the remote control API (which is packed into a dll) or the BNC COMM library. Please contact BNC for the libraries and example programs.

GPIB Interface

The GPIB interface can be used with the common VISA tools, such as NI VISA, or the BNC COMM library. For additional information, please contact BNC.