APSIN x000 Getting Started

Contents

1. Introduction to the APSINX000

What is contained?

Your APSINX000 Series Signal generator kit contains the following items:

- APSINX000 mainframe
- Universal power adaptor (AC 100 – 240V) with UK, US, EU plugs
- Ethernet Cable
- APSINX000 manuals & software CD
- APSINX000 Get Started Manual

General Features and Functions

The Anapico APSINX000 RF Signal Generator provides:

- APSIN3000: 9 kHz to 3300 MHz frequency range (settable to 3400 MHz)

  APSIN6000: 9 kHz to 6500 MHz frequency range
- −30 to +13 dBm power level range (settable: -70 to + 25 dBm)
- Modulation capabilities for FM, ΦM, AM and pulse modulation
- Fast frequency, power and list sweeps
- Extensive trigger capabilities
- Light weight, internal batteries option
- 3- inch status LCD
    - Long-term support: Software upgrades (firmware and PC based) are available to download from www.anapico.com. You can also call our technical specialists for support. You can continue to use both of these services free of charge for the lifetime of the product.
- Universal LAN interface
- 18 months calibration cycle

Options

B3: internal battery operation

HC: front panel user interface with rotary knob

PE: extended power range (-100 to +13 dBm)

RM: 19'' rack mount kit

Unless noted otherwise, this manual describes the basic version of the instrument.

Front Panel Overview

The front panel contains a status display, a RF output female N-type connector, and a RF on/off key (Figure 1). The LCD screen shows information on the current function. Information includes status indicators, frequency and amplitude settings, current connectivity status, and error messages.

Figure 1   APSINX000 Front Panel View

RF On/Off button The **ON/OFF** key toggles between RF output on and RF output off. The red light is indicating whether the RF output is enabled (light on) or not.

RF Out connector This female N- type connector provides the output for RF signals. The impedance is 50 ohm. The damage level is +30 dBm maximum. The maximum allowed DC level is +/- 10 V.

Displayed Parameter Formats

Main LCD display

There are two parameters displayed in the main menu: frequency in Hz (1st line) and RF amplitude in dBm (2nd line).

On the 3rd line the lock status to an external reference source is displayed.

The 4th line provides IP address of the controlled source. The display is updated each time a value is changed.

Frequency - The current value for center frequency. Units: Hz

Range: 9'000 to 3'400'000'000 Hz

Resolution: 0.001 Hz

Amplitude - The current value for output power. Units: dBm

Range: -70.0 to +25.0 dBm

Resolution 0.1 dB

Phase lock – External reference disabled, not locked or locked to integer multiple of 1 MHz

Range: 1 to 100 MHz

LAN – The current IP address of the instrument
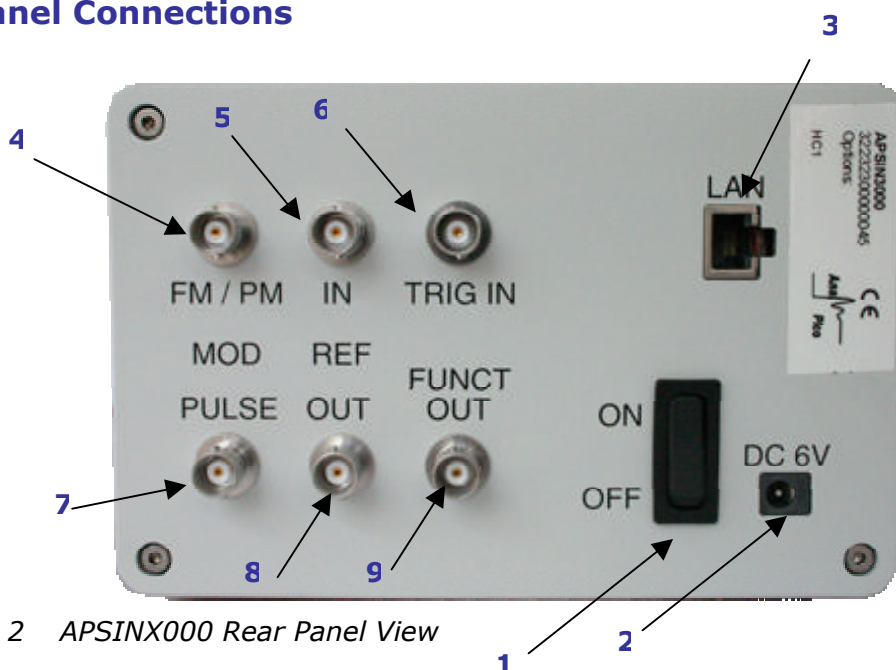
Rear Panel Connections

Figure 2   APSINX000 Rear Panel View

1 Power switch The power switch disconnects the signal generator from the DC input completely, including the internal high-stability reference. After switching on this switch, the signal generator enters into standby with the OCXO warming up and RF out switched off. The orange standby LED (option HC only) on the front panel is turned on.

2 DC IN power receptacle The power receptacle accepts a two-pin plug from the external 6 V DC power adapter

3 RJ-45 host connector Used for connecting with a controller, such as a PC or Labtop.

4 FM/PM MOD IN connector This BNC input connector accepts a 0 to 2 V (peak) signal for FM modulation. The damage level is 4 Vrms.

5 REF IN connector Female BNC connector, accepts a TTL or -5 to +15 dBm sine signal from an external reference oscillator that is within ±1 ppm of the programmed reference frequency. The nominal input impedance is 50 ohm.

6 TRIG IN connector Female BNC connector, accepts a TTL signal from an external trigger source. The input impedance is 1Mohm.

7 PULSE MOD IN connector This BNC input connector accepts TTL signal for pulse modulation. The damage level is 3 Vrms.

8 REF OUT connector Female BNC connector is for an output of the internal 100 MHz reference frequency, which has a nominal output level greater than 8 dBm, and an output impedance of 50 ohm.

9 FUNCT OUT connector Female BNC connector is used as a multiple purpose output. It can be programmed as trigger output, as video output during pulse modulation, and as output for the low frequency function generator (standard on instruments with serial no. above xx00100).

2.   Getting Started

System Requirements

To ensure that your APSINX000 signal generator operates correctly with the graphical user interface, you must have a computer with at least the minimum system requirements to run one of the supported operating systems.

Operating system Windows™ 2000 SP4, XP SP2 or Vista (32-bit versions only)

Ethernet Port 10/100/1000M LAN

Unpacking the APSINX000

Remove the APSINX000 materials from the shipping containers. Save the containers for future use.

The standard APSINX000 package includes:

1 Synthesized Signal Generator

1 An Ethernet Cable

1 Universal DC power adapter

1 APSINX000 Software & Manual CD

1 APSINX000 Get Started Manual

Initial Inspection

Inspect the shipping container(s) for damage. If container is damaged, retain it until contents of the shipment have been verified against the packing list and instruments have been inspected for mechanical and electrical operation.

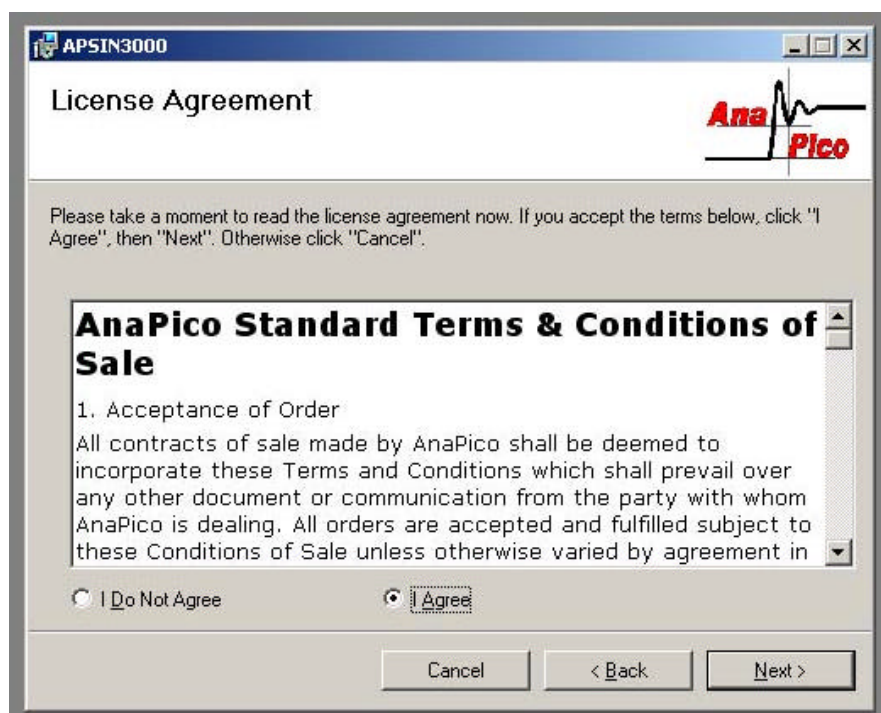## Using the APSINX000 for the first time

We have designed APSINX000 to be as easy as possible to use. Once you have followed the introductory steps listed below, you will be able to run and control the APSINX000 quickly.

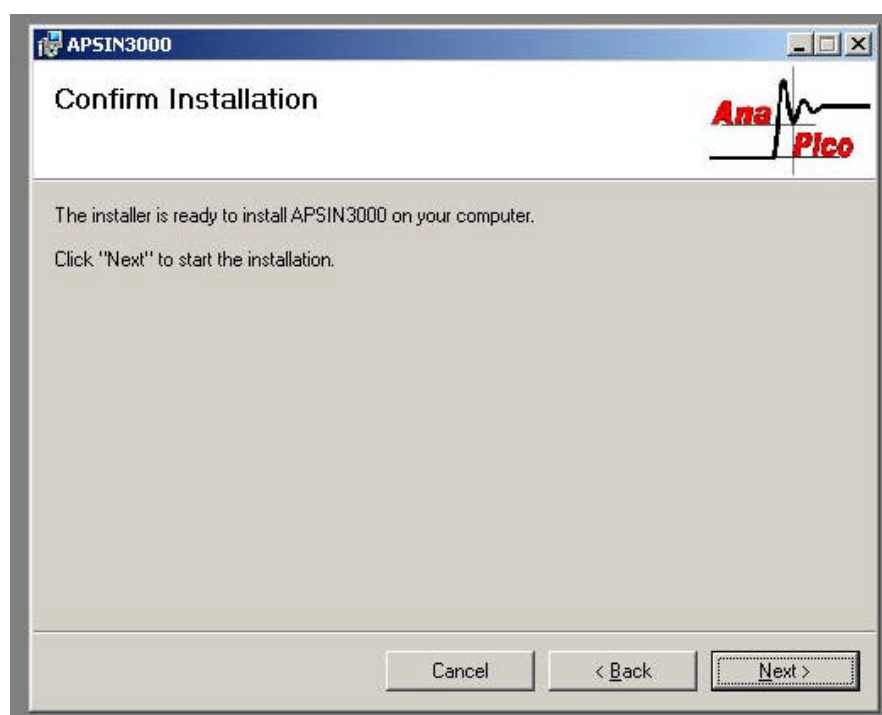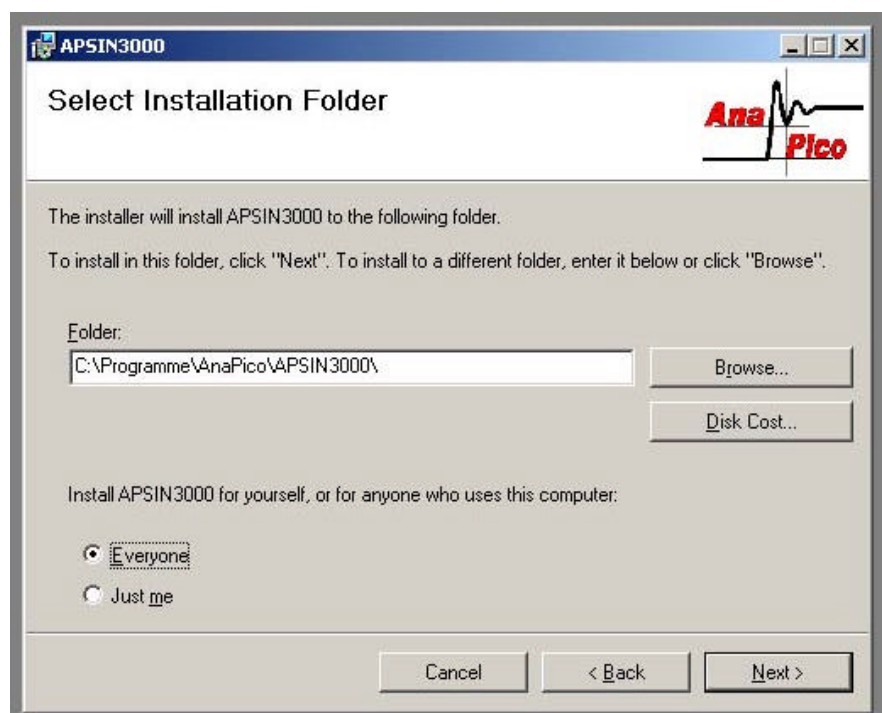1. Install the software. Load the CD-ROM that is included with your APSINX000 device, then click the "Install Software" link and follow the on-screen instructions.

2. Connect and apply power to your APSINX000 device.

3. Click the new APSINX000 icon on your Windows desktop.

4. The GUI will detect your APSINX000 device which may take a moment depending on your LAN settings.

5. Connect to the detected device and start working.
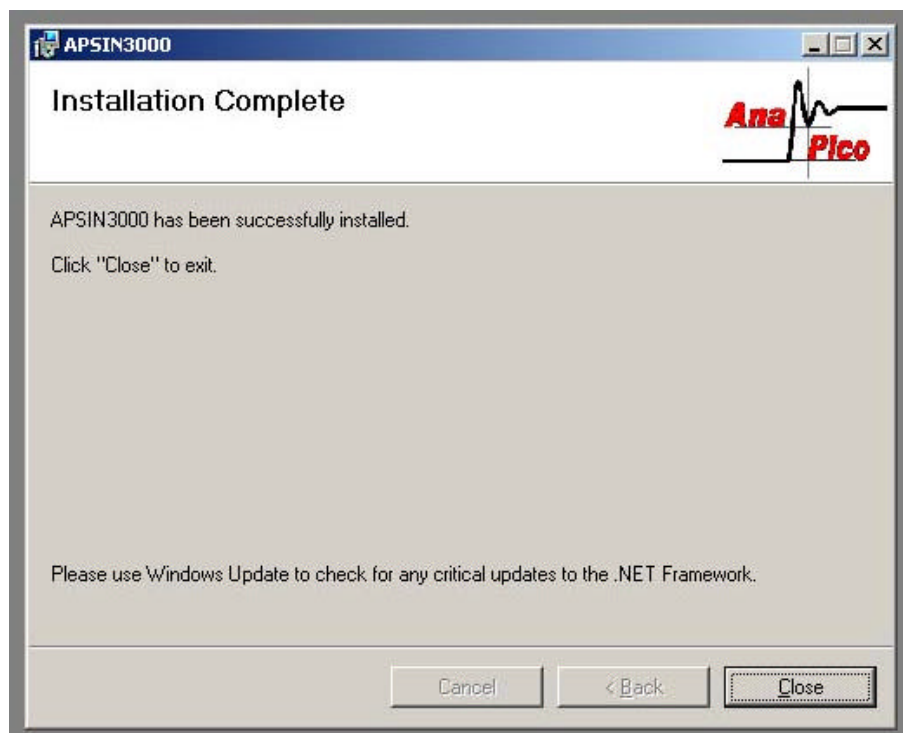
Installing the APSINX000 Remote Client

AnaPico's graphical user interface provides an intuitive control of the APSINX000. It runs under any Windows™ 2000, XP or Vista operating system with minimum requirements. The DLL is embedded in the GUI application and requires .NET™ to be installed. To install the GUI on the computer, insert the APSIN Software and Manual CD into the CD/DVD drive. If the setup doesn't start automatically double click on the setup.exe to run the auto-installer.

The self-extracting setup provides easy installation and de-installation of the software. The setup program guides you in a few steps though the installation process. In case the .NET™ is not installed on the current Windows™ operating system, the setup procedure automatically will assist you to install the required version. For this you will need an internet connection.

Select Installation Folder

The installer will install APSIN3000 to the following folder.

To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".

Folder:
C:\Programme\AnaPico\APSIN3000\

Browse...

Disk Cost...

Install APSIN3000 for yourself, or for anyone who uses this computer:

○ Everyone
○ Just me

Cancel   < Back   Next >

Confirm Installation

The installer is ready to install APSIN3000 on your computer.

Click "Next" to start the installation.

Cancel   < Back   Next >

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Applying Power to the APSINX000

1. Place the APSINX000 on the intended workbench and connect the appropriate DC power supply to the receptacle on the rear of the unit. Make sure you use the included DC power supply. The APSINX000 requires 6 V DC at 3 A maximum. **Using other supplies may lead to malfunction and damage of the APSINX000.**

2. Press the Line on/off switch on the rear panel. The front panel display will illuminate. The instrument will initialize, and momentarily display the model number, firmware revision and product serial number. The display will then switch to the factory default display setting, showing preset frequency (100 MHz) and power (0.0 dBm), phase lock status (No external reference) and instrument IP number (0.0.0.0).

Connecting to LAN

Connect the APSIN to your local area network (LAN) or directly to your PC/Labtop using the Ethernet cable. The instrument is configured to accept its dynamic IP number from the DHCP server of your network. If configured properly, your network router will assign a dynamic IP number to the instrument which automatically will be displayed on the screen. Your instrument is now ready to be controlled.

Connecting to PC without LAN

If you want to connect the instrument directly to your computer (without router in the LAN), you must use an Ethernet cable with crossover (not required if your computer has Gigabit-Ethernet). To work properly, the network card (NIC) of your computer must be configured to use DHCP. If your computer runs on a fixed IP the connection will fail. After a short time, the instrument will detect that no DHCP server is present and assign itself a default IP number 169.254.5.5. The instrument now must show 169.254.5.5 on the display. Should the IP not appear after more than 30 seconds, leave the LAN cable in place and turn the instrument off and then on again and retry.

Troubleshooting the LAN Interconnection

Software does not install properly

- Make sure your installation CD is not damaged.
- When Microsoft® .NET™ Framework is not installed make sure that your PC I connected during installation of the APSINX000 Software.

Software cannot detect any APSINX000:

- Make sure you have connected both PC and APSINX000 to a common network.
- If a direct connection is used, make sure you use an appropriate crossover Ethernet cable (10 and 100Mbit LAN only). Note that detection of the APSINX000 can take several seconds.
- Make sure that your (software) firewall enables the APSINX000 software to setup a TCP/IP connection within the LAN. Under Windows XP you can do that like this: Open *Control Panel* under *Settings* in your *Start* menu. Then go to *Windows Firewall*. Click on *Exceptions* and then *add Program.* If the APSINX000 Software is in this list choose it and click *OK* otherwise you have to browse for the path to AnaPico Software. Finally close all open dialogs with *OK*. Now your Windows™ Firewall is ready for APSINX000.

Shutting Down the APSINX000

Press the Line on/off switch on the rear panel to off.

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