ANAPAT
Control Software for Signal Generator & Analyzer
(Bench/Portable Version)

Quick Guide

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

| VERSION NO.	DATE	SUMMARY OF CHANGE
VS1	02/08/17	Final technical review
VS2	02/02/17	Updated cable testing function

CONTENTS

1. INTRODUCTION

Anapat is fully featured control software for use with the CPHD-V4 (Bench Version) and CPHD-V4L (Portable Version) Signal Generator & Analyzer products. This software is designed for installation and operation on a standard Windows (7, 8, 8.1, 10) PC or Laptop. This software provides full control over the Signal Generator & Analyzer products using a flexible and automatically adaptive interface layout. The designated unit can be controlled via either Ethernet or RS-232 and a direct command input CLI is also provided for advanced users.

2. INSTALLATION

Before beginning the installation of the software, please remember to uninstall any previously installed versions of the software, to avoid potential conflicts, by using the Windows "Add or Remove Programs" function.

Next, please obtain the "Anapat" software from your authorized dealer and save it in a directory where you can easily find it. Extract all files from the Anapat *.zip file, find the Setup.exe file and execute it to launch the Installation Wizard.

Follow the installation prompts and select your preferred installation location to complete the installation.
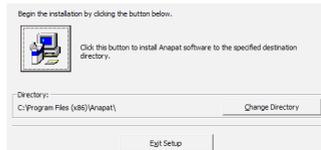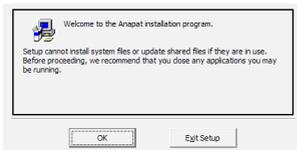
After the installation has completed, a copy of the Anapat shortcut will be placed within your Start menu and it will have the same icon as seen below.

3. CONNECTION

The Anapat software can connect to the Bench Version of the Signal Generator & Analyzer via RS-232 or Ethernet or to the Portable Version via RS-232 (Using the Micro-USB port). Please follow the steps below to connect using the method appropriate for the device you wish to control.

3.1 Connect via Ethernet
(Bench Version Only)

Step 1: Start the Anapat software by clicking on it in the Start Menu.

🛑 *On some Windows 10 installations it might be necessary to start the software using the "Run as administrator" option.*

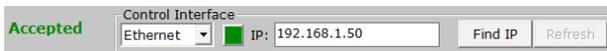**Step 2:** Select "Ethernet" as the control interface.

Step 3: *(If you already know the IP address of the unit, skip to Step 4.)* If you do not know the IP address of the unit you wish to connect to, click on the "Find IP" button. This will open up a window listing all available units on the local network.

Step 4: Double click on the IP address of the unit you want to connect to or manually type it into the space provided.

Step 5: If the connection button is showing Red (🟥), click it to initiate the connection. The "Not Linked" message should change to "Accepted" and the connection button will turn Green (🟩).

3.2 Connect via RS-232
### (Bench or Portable Version)

Step 1: Start the Anapat software by clicking on it in the Start Menu.

⚠ *If you are attempting to connect to the Portable Version, remember to change the USB connection to "RS-232" in the unit's "Setup" menu before connecting it to the PC's USB port.*

Step 2: Select "RS-232" as the control interface.

Step 3: *(If you already know the COM port of the unit, skip to Step 4.)* If you do not know the COM port of the unit you wish to connect to, click on the "Device Manager" button which will open up the Windows Device Manager. Browse through the devices listed under "Ports (COM & LPT)" to find the correct COM port.
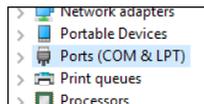
Step 4: Select the correct COM port of the unit from the dropdown in the Anapat software and the software should automatically connect to the unit. If it is successful the connection button will turn Green (■) and the "Not Linked" message will change to read "Accepted".
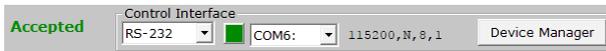
Step 5: If the connection button is still showing Red (■), double check that you have selected the correct COM port and that the cable is properly connected. Click the button to attempt to re-initiate the connection.

4. SOFTWARE OPERATION

All major functions of the Signal Generator & Analyzer units are accessible from the tabs and buttons provided in the main window of the Anapat software. These include operation mode selection, EDID management, output resolution selection, pattern selection, function control, sink/source monitoring, and cable testing (Portable Version only).

4.1 Operational Mode

The Signal Generator & Analyzer units have 2 main operational modes, Analyzer Mode and Pattern Mode. The Portable Version has an additional 3rd mode, Cable Testing.
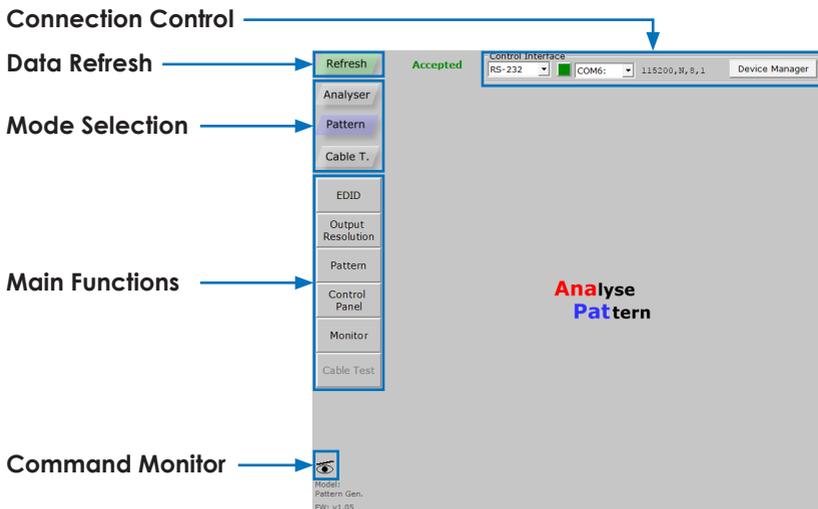

Figure 1: Mode Selection, Portable Version

Select the preferred mode of operation by clicking the appropriate button in the **Mode Selection** area of the software. The unit will take a few seconds to change modes and refresh its data. Once the process has completed the button will be highlighted and normal control can resume.

You may now select one of the **Main Function** buttons on the left side of the interface. This will populate the interface with all appropriate controls and data relating to the selected function.

If at any time you feel that the currently displayed data is not correct or up to date (due to direct manual operation of the unit, for example) you may click on the **Refresh** button to force a re-download of the unit's data to the software.

Clicking on the **Command Monitor** button (⬤) will open a second window that displays all command responses from the connected unit. Individual Telnet commands may also be entered here to test command syntax or to control the unit directly.

Figure 2: Command Window

4.2 EDID Management
(Analyzer Mode & Pattern Mode)

This tab provides control over the unit's EDID Management including options to select, read, write, analyze and save any EDID available to the unit. These functions are primarily used when in Analyzer Mode, however they are available in both modes.
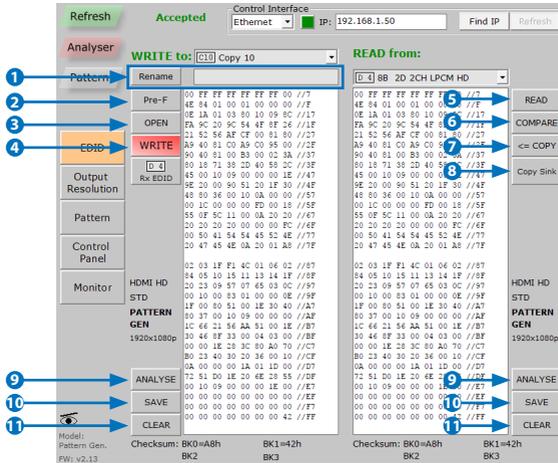

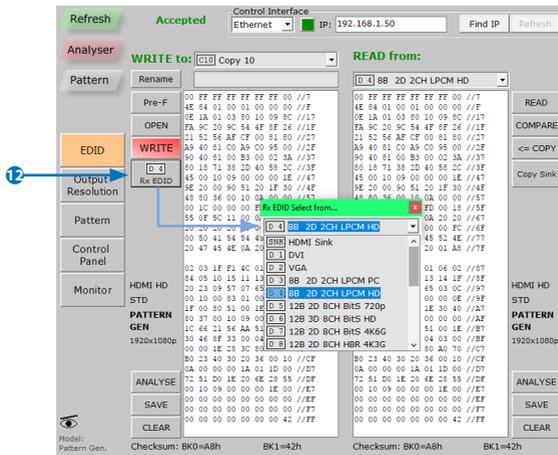**Figure 3: EDID Management in Analyzer Mode, Bench Version**

Figure 4: Rx EDID Selection in Analyzer Mode, Bench Version

1 **RENAME:** Renames the currently selected "Write to:" EDID to the text typed into the entry box.

2 **PRE-F:** Opens a quick-access list of recently opened EDID files.

3 **OPEN:** Loads a previously saved EDID file (*.bin format) from the local PC/Laptop and places it into the left window.

4 **WRITE:** Writes the EDID from the left window to the EDID destination selected in the "Write to:" dropdown menu.

5 **READ:** Reads the EDID from the currently selected source/sink listed in the "Read from:" dropdown menu and places it into the right window.

6 **COMPARE:** Compares the EDID in the left window with the EDID in the right window. Any data that is different between the EDIDs will be marked in red.

7 **<= COPY:** Copies the EDID in the right window to the left window.

8 **COPY SINK:** Allows directly copying the EDID from the current HDMI sink to any of the Copy EDID slots.

9 **ANALYZE:** Generates a short analysis report for the EDID (from the left or right window, depending on the button pressed) in a new window. The report may be saved to the local PC/Laptop if desired.

10 **SAVE:** Saves a copy of the EDID (from the left or right window, depending on the button pressed) to a file on the local PC/Laptop.

11 **CLEAR:** Clears the copy of the EDID (from the left or right window, depending on the button pressed) from memory.

12 **Rx EDID:** Allows selection of any EDID stored in the unit, or copied from a connected sink. The selected EDID will be set as the EDID to be sent to any device connected to the HDMI input (Rx) of the unit.

4.3 Output Resolution
(Analyzer Mode & Pattern Mode)

This tab provides control over the unit's Output Resolutions and allows setting "Favorite Timings" for quick selection. These functions are available for both Analyzer Mode and Pattern Mode.

❗ *The "Bypass" output resolution only works in Analyzer mode. The image below is from the Bench Version of the unit. The list of available resolutions for the Portable Version is more limited.*
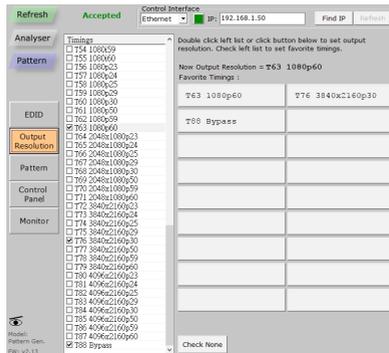

Figure 5: Output Resolution in Pattern Mode, Bench Version

The output resolution that is currently in use is displayed near the top of the window. Selecting a new resolution for output can be done in one of two ways. Click on a resolution in the "Favorite Timings" list or find the resolution in the list on the left and double-click the resolution name.

To add a resolution to the "Favorite Timings" list, find it in the full list on the left and click its check box. To remove a resolution from the list, find it in the full list on the left and uncheck the checkbox. To remove all resolutions from the "Favorite Timings" list, click the "Check None" button.

❗ *Favorites are not permanently saved and will be reset to the defaults when the software is closed.*

When connected to the Portable Version of the Signal Generator & Analyzer in Analyzer Mode the available Output Resolution choices are limited to 3 options: A pure Bypass mode, a mode that down-converts 4K sources to 1080p and outputs as RGB (same frame rate as the source), and a mode that down-converts 4K sources to 1080p and outputs as YCbCr (same frame rate as the source).


Figure 6: Output Resolution in Analyzer Mode, Portable Version

4.4 Test Pattern
(Pattern Mode Only)

This tab provides control over the unit's test patterns and allows setting "Favorite Patterns" for quick selection. This function is only available in Pattern Mode.

🛑 *The image below is from the Bench Version of the unit. The list of available patterns for the Portable Version is more limited.*
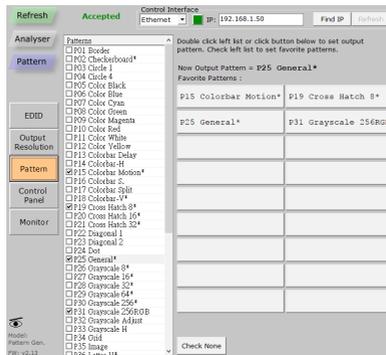
**Figure 7: Test Pattern in Pattern Mode,
Bench Version**

The pattern that is currently in use is displayed near the top of the window. Selecting a new pattern for output can be done in one of two ways. Click on a pattern in the "Favorite Patterns" list or find the pattern in the list on the left and double-click the resolution name. Patterns with multiple versions or modes are marked with an (*). The additional versions of the pattern are activated by re-selecting the pattern multiple times.

To add a pattern to the "Favorite Patterns" list, find it in the full list on the left and click its check box. To remove a pattern from the list, find it in the full list on the left and uncheck the checkbox. To remove all patterns from the "Favorite Patterns" list, click the "Check None" button.

🛑 *When using Windows 10, by default, favorites will not be saved when the software is closed. To avoid this, please use the "Run as administrator" option to start the software.*

4.5 Control Panel
(Analyzer Mode & Pattern Mode)

This tab provides control over the unit's additional features, functions and settings that are not covered by the other tabs. The available controls change depending on the unit's current operational mode (Analyzer or Pattern), and which functions are appropriate based on the unit's current output resolution and pattern selection.
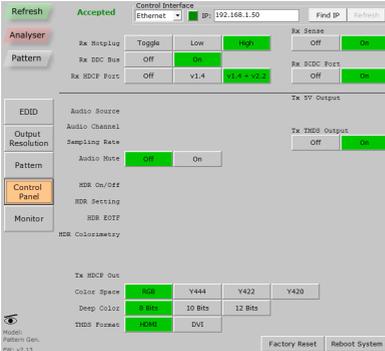

Figure 8: Control Panel in Analyzer Mode, Bench Version

Figure 9: Control Panel in Pattern Mode, Bench Version

The primary controls contained here are for HDCP, Color Space/ Bit-depth/HDR, Audio, and Hot Plug/Voltage. Additionally, this tab provides controls for performing a Factory Reset or rebooting the unit.

4.6 Real-time Monitoring
(Analyzer Mode & Pattern Mode)

This tab provides access to a full suite of real-time monitoring and analysis functions covering a wide range of data from both the input and output.
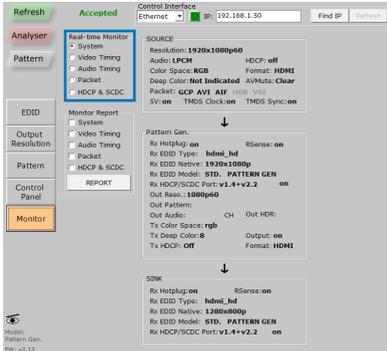

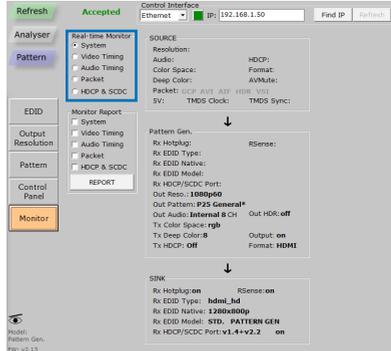**Figure 10: Monitoring in Analyzer Mode, Bench Version**

Figure 11: Monitoring in Pattern Mode, Bench Version

The available Real-time Monitor categories are:

1 SYSTEM: Basic source, sink and unit signal information.

2 VIDEO TIMING (Analyzer Mode only): Detailed information about the source's video timing.

3 AUDIO TIMING (Analyzer Mode only): Detailed information about the source's audio format.

4 PACKET (Analyzer Mode only): Detailed information about the source's GCP, AVI, AIF, SPD, VSI, and DRMI packets.

5 HDCP & SCDC (Analyzer Mode): Detailed information about the source's HDCP and SCDC interaction with the unit.

HDCP & SCDC (Pattern Mode): Detailed information about the sink's HDCP and SCDC interaction with the unit.

Additionally, reports can be generated for each monitoring type, or any combination of multiple types. The report can be viewed directly in the window, or saved to the local PC/Laptop as a text file.

4.7 Cable Testing
(Portable Version Only)

The Portable Version of the Signal Generator & Analyzer includes a cable testing function to help quantify the general feature support and error resistance capabilities of the cable being tested. The Cable Test tab contains the controls required to perform a cable test.
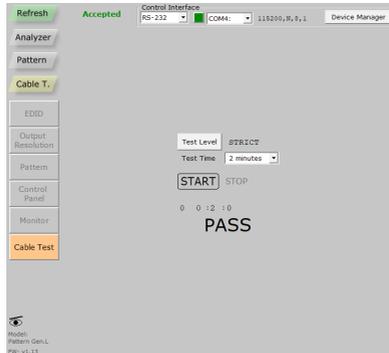

Figure 12: Cable Testing Mode,
Portable Version only

To perform a cable test:

Step 1: Connect the cable to be tested to both the HDMI input and HDMI output of the unit.

Step 2: Select the preferred Test Level (Normal or Strict).

Step 3: Select the length of time to run the test (from 2 minutes up to "Infinite").

Step 4: Click on the "Start" button and wait for the test process bar to complete. A test in "Normal" mode usually takes about 2 minutes to complete.

Step 5: The software will display the result of the testing (PASS or FAIL). More detailed information from the test is available on the unit itself.

❗ *A FAIL result does not necessarily mean that the cable cannot pass an 18Gbps signal under ideal circumstances, however it is an indication of a high number of detected data errors that could result in unreliable or unstable performance with high-bitrate signals in less than optimal conditions.*