XA-3P

Operation Guide & Top Tips

For Trouble Shooting

Introducing the XA-3P

Battery Operated Pattern Generator And Analyser to enable the test and verification of all aspects of the HDMI signal Path.

Portable palm-sized design with easy to use front-panel controls

LED display with rapid updates of current status information

Specification

- HDMI I/O with 18Gbps (6G) 4KUHD Support
- HDCP v1.4 and v2.2 Compliant
- Supports HD resolutions up to 3840x2160 @ 60Hz (YUV 4:4:4, 8-bit)
  4096x2160 @ 60Hz (YUV 4:4:4, 8-bit)
- 23 selectable output resolutions available in test pattern mode
- 11 selectable output patterns available in test pattern mode
- 10 pre-set default EDID's and 10 user EDID slots from connected sinks
- HDCP and SCDC monitoring functions
- HDMI 2.0 Cable Test option with support for 5v and Hot-Plug detection
- Generation of sinewave audio up to LPCM 8CH and analysis of the source audio signal

Getting to know the XA-3P

Top View.

Power on/off

HDMI I/O.

USB Mini. For charging, mains power or firmware updating

OLED. This display changes dependent on operational mode. This will be explained in further slides. The red dot in the corner is the charging indicator.

MENU. Used to back out of sub menus and return to the main operational screen.

ENTER. Used to confirm a selection or go deeper into sub menus.

-↓ / +↑. Used to move up and down or adjust selections within menus.

HDCP. Used to toggle between HDCP modes or to disable HDCP. Pressing and holding this button during the power cycle will reset the unit to factory default settings.

TASK MODE. Used to toggle between Analyser Mode, Generator Mode and Cable Test Mode*.

*Cable Test Mode only available on the XA-3P

Power Saving Mode

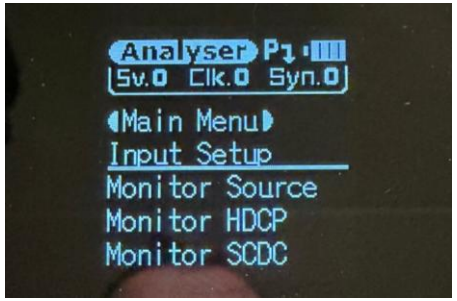
The OLED display will automatically switch off after the set number of minutes. All other functions of the unit will continue normally while the display is turned off and the HDCP button will slowly flash red to indicate it is in power saving mode. To turn the OLED display back on, press any key. This power saving feature is only available while the unit is not receiving power via USB.

Switching on the XA-3P

Best Practice
Each time the XA-3P is used many settings will be changed within its settings. To ensure a true test is carried out every time it is recommended that a factory reset is performed every time it is used.

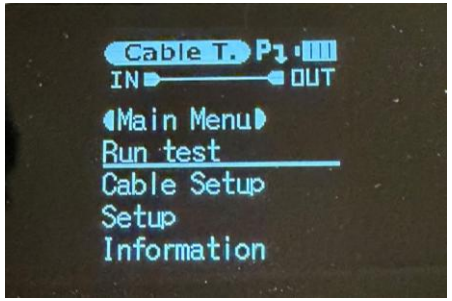
1. Press and hold the HDCP button
2. Switch on the power
3. Wait 5 seconds
4. Release the HDCP button

Understanding Task Modes



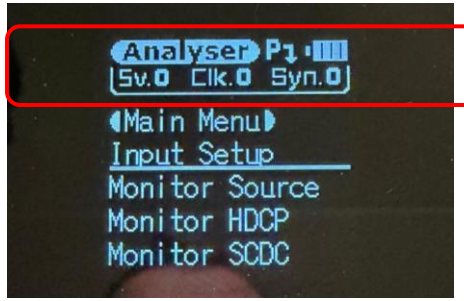
Analyser Mode:
Allows you to connect a source device to interrogate its properties. This can be done anywhere along the signal chain to identify where the problem may be occurring.

Pattern Mode:
Allows you to connect to a display to with fixed output properties. This can be done anywhere along the signal chain

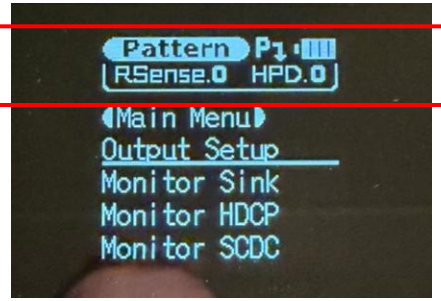


Cable Test Mode:
Allows you to connect a cable to both the output and input to test its integrity.

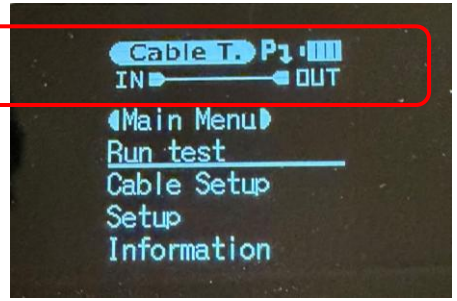
Understanding Task Mode Screens



STATUS



LINE



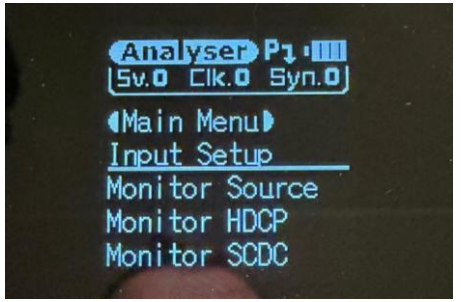
Analyser Mode:
The status line will display the 5V, TMDS clock, and sync detection state of the connected source.
(1 = detected, 0 = not detected.)

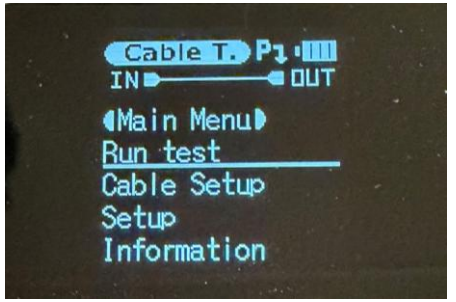
Pattern Mode:
The status line will display the RxSense and Hot-plug
detection state of the connected display.
(1 = detected, 0 = not detected.)

Cable Test Mode:
The status line will display a cable connection graphic.

Switching to the Correct Mode

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the correct mode you wish to use. The XA-3P has three different modes as shown.





Analyser Testing Methods

Analyser Testing Methods

Single Ended

This method is used by connecting a single HDMI cable to either the in or out socket on the top of the unit.

Inline

This method is used by connecting a pair of HDMI cables to both the in and out sockets on the top of the unit.

EDID Transparency for In-line Testing

To analyse the signal path without compromise, the EDID of the XA-3P will need to be set to ‘Copy Sink’. This will make the XA-3P invisible to the signal path whilst interrogating it.
Follow the steps below.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
3. Scroll up to EDID Emulator and press Enter. (figure 2)
4. Scroll down to Copy Sink and press Enter. (figure 3)

Figure 1

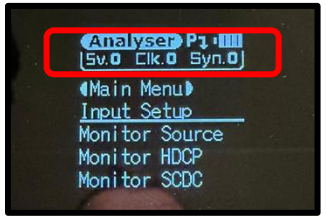


Figure 2

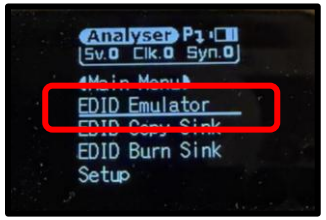
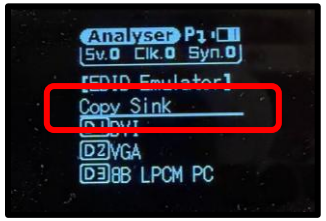


Figure 3



Analyser Mode – Monitor Source

This mode is used to monitor and record the properties of a connected source.

- Switch on the Unit
- Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
- Scroll down to Monitor Source and press Enter. (figure 2)
- Plug the HDMI cable with connected source into Input on the top of the unit.
- Confirm sync. (figure 3)

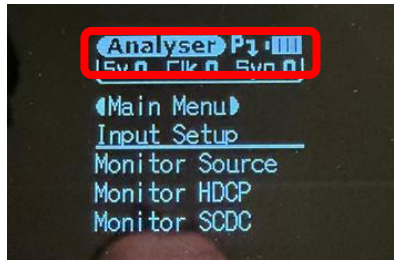


Figure 1

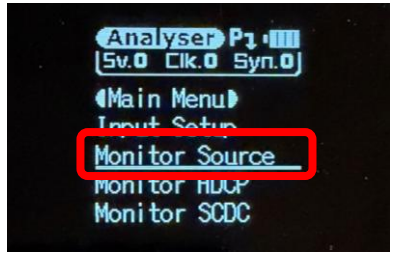


Figure 2

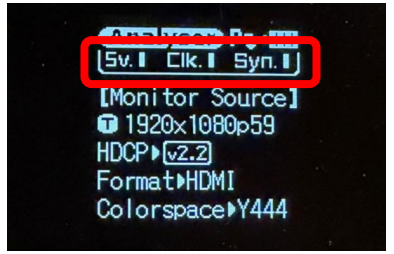
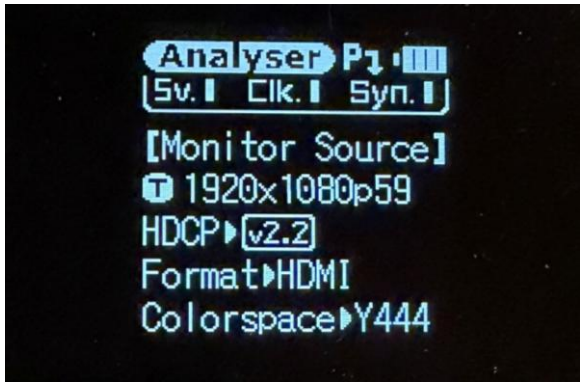


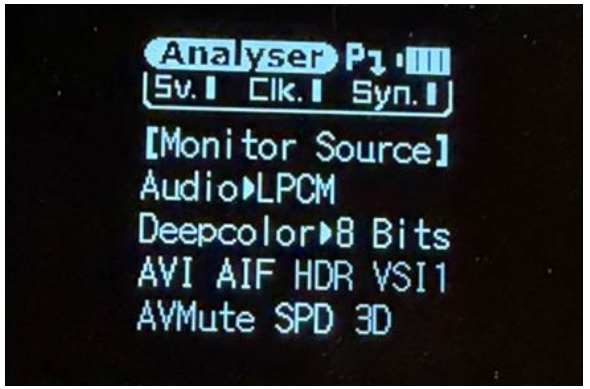
Figure 3

Analyser Mode – Data Analysis

Each source will provide specific data under the following headings:

- Timing
- HDCP
- Format
- Colourspace
- Audio
- Deep Colour
- AVI, AIF, HDR, VSI,
- AVMute, SPD, 3D





Analyser Mode – Monitor HDCP

This mode is used to monitor and record the HDCP properties between a connected Source and the XA device.

- Switch on the Unit
- Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
- Scroll down to Monitor HDCP and press Enter. (figure 2)
- Plug the HDMI cable with connected source into Input on the top of the unit.
- Confirm sync. (figure 3)

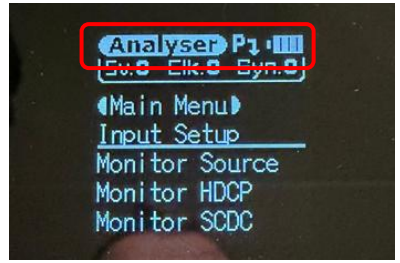


Figure 1

Figure 2

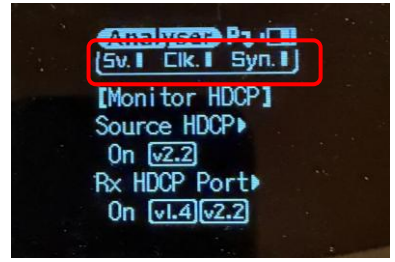


Figure 3

Analyser Mode – Monitor HDCP

V1.4 V2.2/2.3 Off

Figure 1

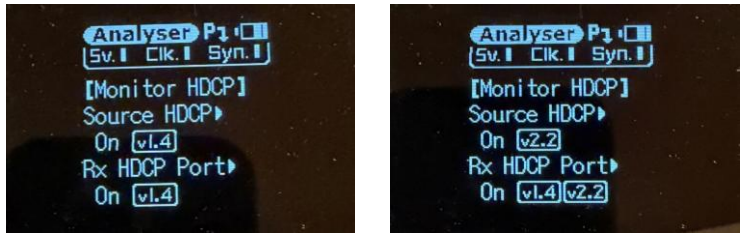


Figure 2

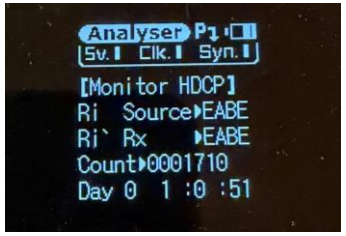


Figure 3

1. Using the HDCP button, toggle between V1.4, V2.2/2.3* and off. Each mode is identified by the button colour. (figure 1)
   *V2.2 = XA-3P V2.3 = XA-8P
2. The information on the OLED will reflect the selection. (figure 2)
3. In V1.4 mode you can leave the unit connected to soak test. The counter and time will increase whilst registering any HDCP drops. This page is accessed by scrolling down in V1.4 mode. (figure 3)
4. To carry out a prolonged test you will need to disable the power saving mode and power the XA-3P

Analyser Mode – Monitor SCDC

This mode is used to monitor and record the incoming HDMI signal. It will record dropouts over long soak period.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
3. Scroll down to Monitor SCDC and press Enter. (figure 2)
4. Plug the HDMI cable with connected source into Input on the top of the unit.
5. Confirm sync. (figure 3)

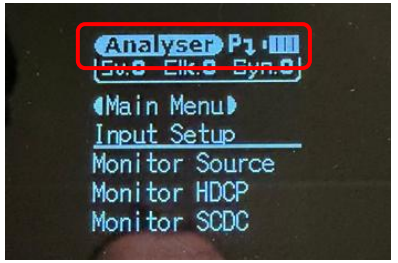


Figure 1

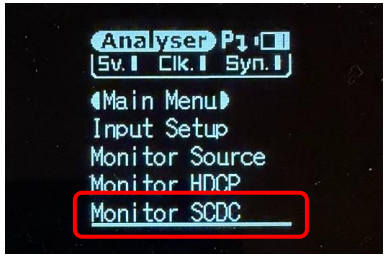


Figure 2

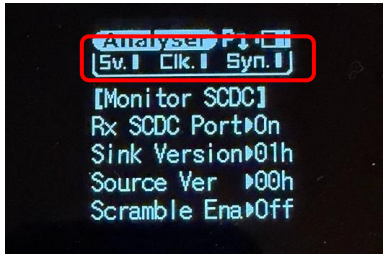
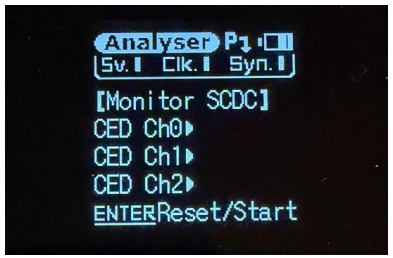
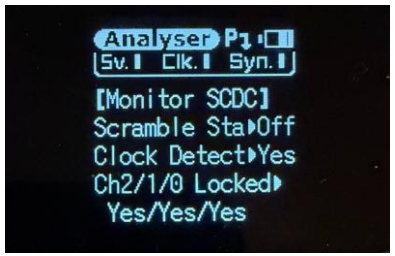


Figure 3

Analyser Mode – Monitor SCDC





Each source will provide specific data under the following headings:

Rx SCDC Port
Sink Version
Source Version
Scramble Enabled
HF VSDB
SCDC Exist
CED Ch0
CED Ch1
CED Ch2
ENTER Reset/Start
Scramble Status
Clock Detect
Ch2/1/0 Locked

Analyser Mode – Monitor SCDC -HDMI Signal Test

1. Using the scroll down button, navigate to the 3rd page. (figure 1)
2. Pressing Enter will reset and start the timer.
3. CH0, CH1 and CH2 will display signal packet drops if, and when they occur. (figure 2)
4. To carry out a prolonged test you will need to disable the power saving mode and power the XA-3P

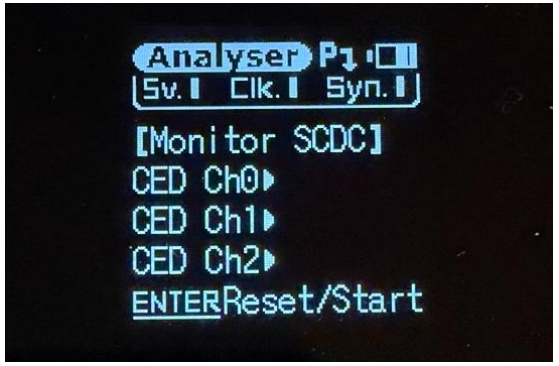


Figure 1

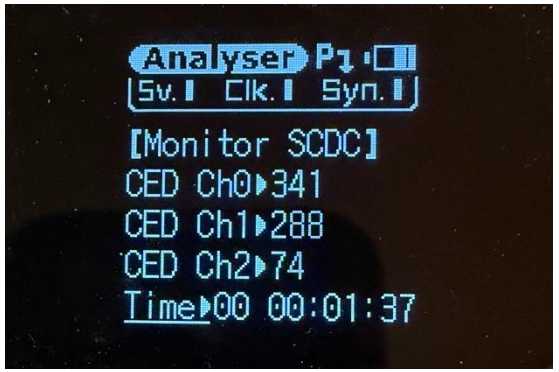


Figure 2

Analyser Mode – Video Timing

This mode is used to analyse the incoming video timing from the connected source.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
3. Scroll down to Video Timing and press Enter. (figure 2)
4. Plug the HDMI cable with connected source into Input on the top of the unit.
5. Confirm sync. (figure 3)

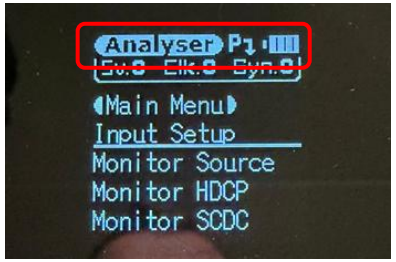


Figure 1

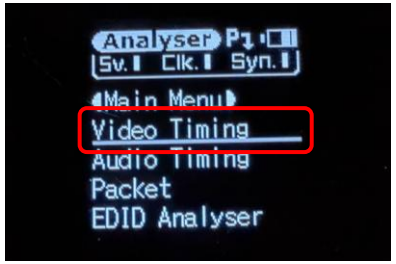


Figure 2

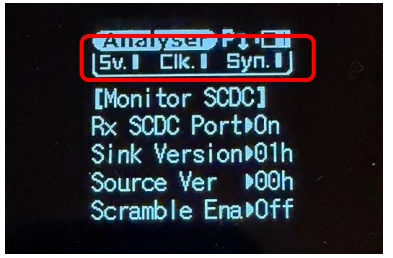
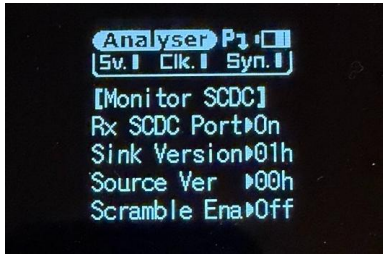
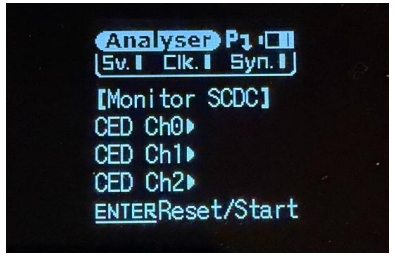
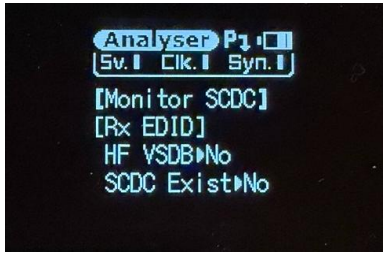


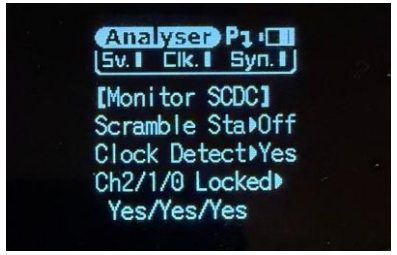
Figure 3

Analyser Mode – Video Timing









Each source will provide specific data under the following headings:

Data Rate [Analytic Data]
Bit Depth, 3D, Y4:2:0, Scramble
Total (H/V Total Pixel/Line)
Act (H/V Active Pixel/Line)
Polarity (H/V Sync. Polarity)
Scan
Hfreq (H Sync. Frequency)
Vfreq (V Sync. Frequency)
Offset1 (H/V Sync. Offset1)
Offset2 (H/V Sync. Offset2)

Analyser Mode – Audio Timing

This mode is used to analyse the incoming audio timing from the connected source.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Analyser. (figure 1)
3. Scroll down to Audio Timing and press Enter. (figure 2)
4. Plug the HDMI cable with connected source into Input on the top of the unit.
5. Confirm sync. (figure 3)

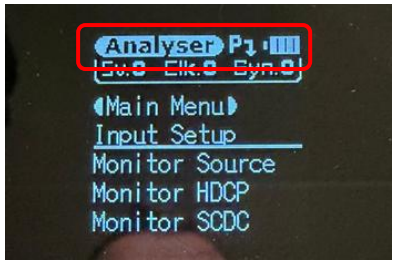


Figure 1

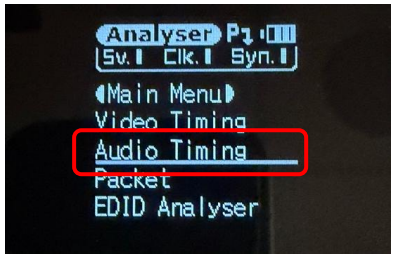


Figure 2

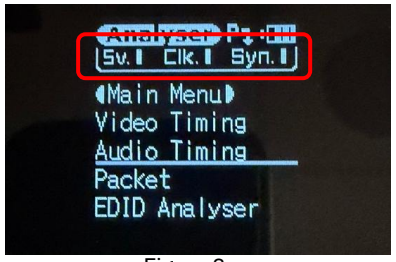
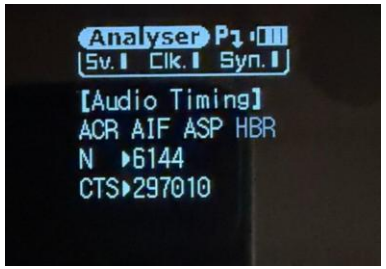
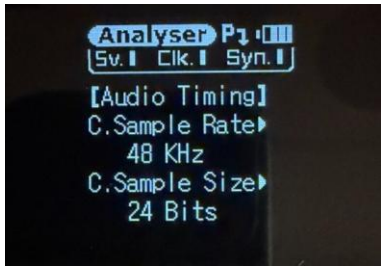
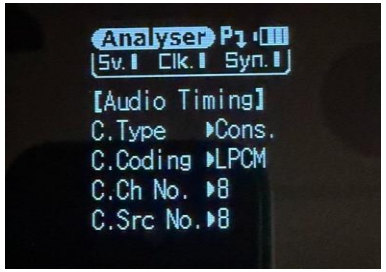


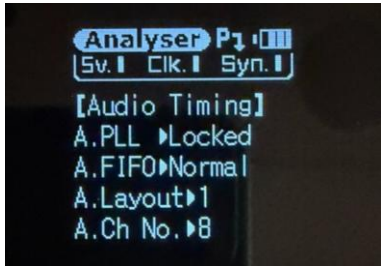
Figure 3

Analyser Mode – Audio Timing









Each source will provide specific data under the following headings:

ACR, AIF, ASP, HBR
N
CTS
ASP PLL Lock
ASP audio FIFO
ASP Layout
ASP Ch No.
CHS App. Type
CHS Audio Coding
CHS Ch No.
CHS Source No.
CHS Sampling Rate
CHS Sampling Size

Pattern Generation

Pattern Mode – Output Setup

In order to generate a pattern with the correct properties you will need access Output Setup.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Pattern. (figure 1)
3. Scroll to Output Setup and press Enter. (figure 2)

In this menu you will be able to adjust features such as Resolution, Pattern, Audio, Colour Range, HDCP and many more.

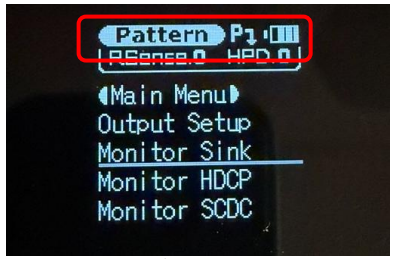


Figure 1

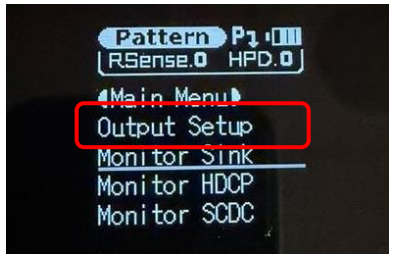


Figure 2

Pattern Mode – Output Setup

The XA-3P has 23 selectable output resolutions and 11 selectable static Test Patterns. The first screen in Output Setup mode shows these options. (figure 1)
Selecting either heading will enable you to scroll though the lists shown below to select the desired resolution and/or pattern.

Output Resolutions

[T1] 720×480p59
[T2] 720×576p50
[T3] 1280×720p25
[T4] 1280×720p30
[T5] 1280×720p50
[T6] 1280×720p60
[T7] 1920×1080i50
[T8] 1920×1080i60
[T9] 1920×1080p24
[T10] 1920×1080p25
[T11] 1920×1080p30
[T12] 1920×1080p50
[T13] 1920×1080p60 *default
[T14] 3840×2160p24
[T15] 3840×2160p25
[T16] 3840×2160p30
[T17] 3840×2160p50
[T18] 3840×2160p60
[T19] 4096×2160p24
[T20] 4096×2160p25
[T21] 4096×2160p30
[T22] 4096×2160p50
[T23] 4096×2160p60

Test Patterns

[P1] Black
[P2] Blue
[P3] Cyan
[P4] Green
[P5] Magenta
[P6] Red
[P7] White
[P8] Yellow
[P9] Color Bar *default
[P10] Grayscale 256
[P11] V Line OnOff

Output Resolution
Test Pattern

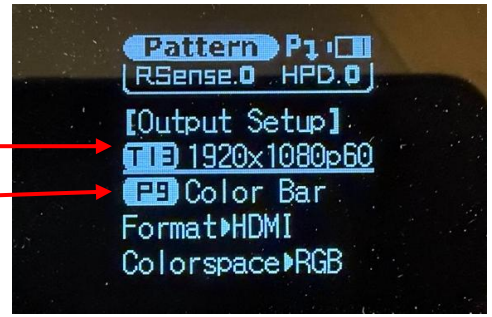


Figure 1

Pattern Mode – Monitor HDCP

This function can be used to confirm the operation and version of the HDCP of the connected display.

1. Switch on the Unit
2. Using the Task Mode button, toggle until the screen displays the word Pattern. (figure 1)
3. Scroll down to Monitor HDCP and press Enter. (figure 2)
4. Plug the HDMI cable with connected source into Input on the top of the unit.
5. Confirm sync. (figure 3)

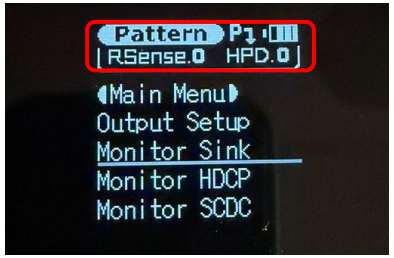


Figure 1

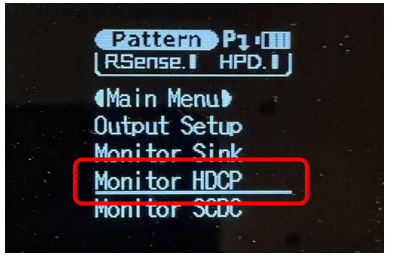


Figure 2

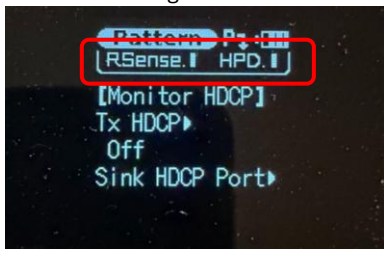


Figure 3

Pattern Mode – Monitor HDCP

1. Using the ‘HDCP hard button’, switch on HDCP to either version 1.4 or 2.2 (figure 1)
2. Each version will show you the HDCP condition (pass or fail) and version of the connected display

V1.4 V2.2 Off

Figure 1

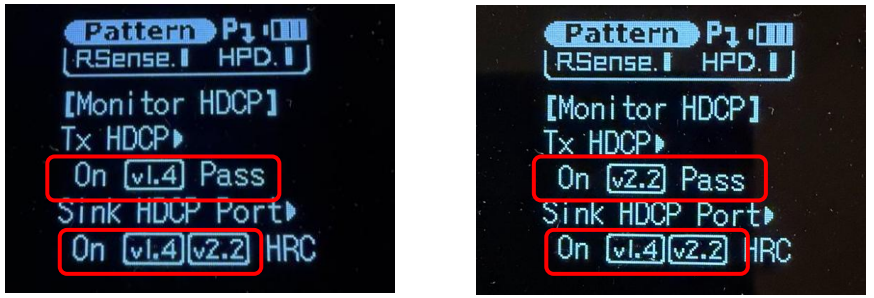


Figure 2

Pattern Mode – Monitor HDCP

Each sink will provide specific data under the following headings:

HDCP Port/Auth
EDID
SCDC Port

Overcoming Issues

RE-101-4K22

Full 4K HDMI to HDMI Repeater with EDID Management

Specification

- HDMI input and output with 18Gbps (600MHz) 4K UHD support
- DVI 1.0 compliant with the use of an HDMI-DVI adaptor
- HDCP 1.4 and 2.2 compliant
- Supports HD resolutions up to 3840×2160@60 Hz (4:4:4, 8-bit) & 4096×2160@60 Hz (4:4:4, 8-bit)
- Supports 48-bit Deep Colour up to 1080p@60Hz and 36-bit Deep Colour up to 4k@60Hz (YUV 4:2:0)
- Supports pass-through of LPCM 7.1, Bitstream and HD Bitstream audio formats
- EDID selectable between internal, external and user custom EDID
- PC based EDID management tool support via the Micro-USB port
- LED display providing an easy view of the current EDID and unit status

RE-101-4K22

Intermittent high bandwidth signal failures on longer cables with are generally caused by EDID, HDCP or voltage drops. Adding the RE-101-4K22 into the signal chain will alleviate these issues whilst enhancing and stabilizing the HDMI signal.

1. Insert the device into the HDMI chain close to the display device and add the 5V power. (figure 1)
2. The RE-101-4K22 has three EDID options that are toggled via the 'EDID' button. Each selection is shown via the LED's on the top of the unit. (figure 2)

Figure 1

EDID Options
INT: Uses built in EDID (1080P 4K60 LPCM 2.0 Audio)
EXT: Uses EDID from connected display
USER: Custom EDID loaded by user (preloaded 4K60 4.2.0 LPCM 2.0 audio)

Figure 2

RE-EDID-4K22

HDMI Full 4K EDID Manager with HDCP modes & downscaler

Specification

- HDMI input and output with 18Gbps (6G) 4K UHD support
- HDCP 1.4 and 2.2 compliant
- Supports HD resolutions up to 3840×2160@60Hz (4:4:4, 8-bit) & 4096×2160@60Hz (4:4:4, 8-bit)
- Supports 48-bit Deep Colour up to 1080p@60Hz
- Supports Four different EDID modes : Read / Write / Emulate / Bypass modes
- Read Mode : Reads the TV/display's EDID information
- Write Mode : Overwrites the TV/display's EDID information (TV/display needs to be able to support overwrite function)
- 8 unique sets of EDID settings may be stored via the learning procedure.
- Emulator Mode : Allows the source device to read the selected EDID information from the unit's default or learnt EDID memory
- Bypass Mode : Allows the source device to read the EDID information from the TV/display directly
- Supports DVI sources when used with a DVI to HDMI adaptor (not supplied)
- Supports CEC functionality

RE-EDID-4K22

Built to overcome more complex incompatibility issues, the RE-EDID-4K is a complete toolbox in a tiny form factor.

- LEDs 1~8: These LEDs illuminate to indicate which EDID from the currently selected EDID mode is active.

- User: This LED will illuminate when the unit is in User EDID mode.
- Internal: This LED will illuminate when the unit is in Internal EDID mode. Note: When both the User and Internal LEDs are lit, the unit's EDID is in External bypass mode.
- HDCP Ver.: This LED illuminates to indicate the HDCP version used by the connected source. A red LED indicates that the source is using HDCP v1.x (1.0~1.4). A green LED indicates that the source is using HDCP v2.2. When the LED is not illuminated it indicates that the source does not require, or use, HDCP.
- HDCP Mode: This LED illuminates to indicate the current HDCP management mode selected for the HDMI input port. A red LED indicates "Follow In" mode, and the unit will enforce HDCP based on the requirements of the connected source. A green LED indicates "Follow Out" mode, and the unit will enforce HDCP based on the capability of the connected display. An un-lit LED indicates that HDCP support has been completely disabled.

Conclusion & Next Steps

- Need something specific? Request a bespoke quote for your project.
- Not sure what you need? Our team will help you find the right solution.
- Stuck on a setup? Get support from our technical experts.
- Looking for something beyond this guide? Speak to our sales team to explore the full range.

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