

Programmable EDID Simulator

Description

The HDMIFIX/DVIFIX is an user programmable EDID Emulator that manipulates the communication between source and display.

The source only sees the EDID of the HDMIFIX/DVIFIX and does not know about the hardware connected beyond the HDMIFIX/DVIFIX. This ensures user controlled EDID with predictable results and faster switching times.

BEWARE ! The manipulation of the automatic negotiation between source and display can cause incompatible resolutions outputted by the source resulting in a blank picture on the display !!

480p@60Hz (resolution 1 of table 2) should result in a picture all the time -this is the minimum shared standard between the HDMI consumer and professional DVI world.

The HDMIFIX/DVIFIX has two operation modes. The standard mode allows assignement of one of the 60 Video EDID and the video output colorspace to one of the 10 user presets (01-10). All audio formats are turned active in this mode.

PRESET 00 forwards the display EDID to the source, PRESET 11 can lean EDID of any display attached at the DMIFIX/DVIFIX's output and forward it to the attached source. Cycling through one of the 12 presets is the standard operation mode of the unit.

Activation of the Standard Programming Mode:

To activate Standard Programming Mode press the +10 button for 2 s while powering the unit. The unit displays "S" for 3 seconds.

In the standard mode you can assign one of the 60 output resolutions and define the colorspace you want the HDMIFIX/DVIFIX to forward to the source. Pressing MODE one time will bring you to the video output (Table 2) settings (VIDEO LED is on). With +1 and +10 buttons you may select one of the 60 output resolutions. Pressing MODE again will bring you to the FMT setting (VIDEO and FMT LED is on). With +1 button you may cycle through the 3 available color space settings.

If you use the unit with DVI sources that are true DVI then FMT changes will have no effect, as DVI only uses RGB color space. Pressing MODE again brings you back in the operation mode. The FMT LED will flash indicating that a HOTPLUG signal has been executed. The source should now start renegotiating the new settings with the HDMIFIX/DVIFIX.

The new setting will automatically be stored in the previous selected PRESET.

It is mandatory to finish the sequence for activating the new settings.

Activation of the Expert Programming Mode:

To activate Expert Programming Mode press the +1 button for 2 s while powering the unit. The unit displays "E" for 3 seconds.

In the expert mode you can assign one of the 60 output resolutions and define the colorspace you want the HDMIFIX/DVIFIX to forward to the source.

In addition to the standard mode, you can select one of 15 audio formats (Table AUDIO 1), specify the numbers of audio channels (AUDIO 2), defining audio sample frequency

(AUDIO 3) and specify the bit depth for the PCM audio modes (AUDIO 4). This is the MODE sequence that is available through repetitive button presses:

Adjustment Sequence:

VIDEO (00 -60) -> FMT (RGB, C2, C4) ->AUDIO 1 (00-15) ->AUDIO 2 (2CH, 6 CH, 8CH) -> AUDIO 3 (F1-F7) and optional AUDIO 4 (r1,r2 und r3) for PCM audio modes.

Once you return to the operation mode the unit will flash the FMT LED indicating that HOTPLUG has been executed. Your settings will automatically be saved in the previous selected PRESET.

The source should now start renegotiating the EDID and start with the settings you have selected in the HDMIFIX/DVIFIX. Make sure that you cycled through the complete sequence !

ATTENTION !

Not all settings must have an effect on the behaviour of the source. This is varying from manufacturer and HDMI source as these may not use all functions specified in the HDMI standard. The HDMIFIX/DVIFIX is offering you all kind of manipulations provided

by the standard but has no control over the implementation of firmware in the individual sources.

HOTPLUG -activating the settings

The Hotplug signal is the signal that initiates the resynchronizing of the source. Once the source detects this signal it starts rereading the EDID.

To force the EDID rereading at any time simply press the MODE button for 2s. The FMT LED will flash.

Read EDID Save into PRESET 11

HDMIFIX/DVIFIX can learn the EDID of any display that is connected to the output connector. You may use any HDMI or DVI display.

Please select PRESET 11.

Press MODE (first) and (then) +10 simultaneously until the display flashes.

You have now successfully stored the EDID of the attached display to the PRESET 11.

You may use this as a reference for other installs or just use it with the current install to speed up switching times and ensure reliable operation. You would have to use one HDMIFIX/DVIFIX for any of the sources that are in use.

However we recommend to use one the 60 single output resolutions EDIDs as they will really force the source into the resolution that works best with your display, instead of using the one that is marked as "NATIVE" that is probably not the best choice.

Give it a try and decide yourself !

RS-232 Port

HDMIFIX/DVIFIX has a powerful control and monitoring interface.

You may download new firmware, control the Presets from a remote system or monitor your adjustments and setting in a

window as real text on your PC monitor.
 The settings are fixed 57600 BAUD, 8N1.
 For firmware updates and monitoring you can use the Hyperterminal program that is integrated in the Windows Accessories.
 A preadjusted configuration file for COM 1 can be downloaded from our website www.spatz-tech.com.

Monitoring

Once the HDMIFIX/DVIFIX is connected with your PC, all adjustments you are making are monitored on the windows screen. If you execute the LEARN mode the complete EDID file of the display will be shown on the screen.
 This powerful function makes the HDMIFIX/DVIFIX a versatile tool for EDID analysis.

Cable EQ (only DVIFIX)

The DVIFIX has a powerful adaptive Cable EQ installed and is able to compensate from 50-80m (165-264ft) of DVI/HDMI cable depending on DVI/HDMI driver and cable quality.
 The function is fully automatic and compensates up to 40dB of cable loss in 4 parametric bands.
 Due to this technology it might happen that results change with selected output resolution. In odd cases you may find that higher res signals are compensated better than lower res video.

FIRMWARE UPDATE (only for experts)

Unfortunately we have learned that not all firmware of todays products is in a mature state forcing us to provide bug fixes for other vendors products or allow new resolutions to be added to our table.
 For this reason we have integrated a firmware update function that allows you to install new software in the HDMIFIX/DVIFIX to correct problems or provide new functionality.
 To do so , you need the update file from our website `**.txt` and a terminal program like the Hyperterminal described already earlier.
 Please connect the RS-232 adaptor with COM 1 and execute the HDMIFIX/DVIFIX.ht file from your desktop that you downloaded from our website. This config file will execute the integrated Hyperterminal program and adjust all necessary settings.
 To verify that you have a valid connection operate the HDMIFIX/DVIFIX via front buttons. It will immediately start returning status messages on the screen.
 Now disconnect the HDMIFIX/DVIFIX from power and repower it with the MODE button pressed for 5s. You can see the countdown sequence in the terminal window.
 Once the unit is ready to receive the file it will display "dL" in the display and the terminal window will show the message:

„SOFTWARE DOWNLOAD Erasing Chip Ready“

In recent released firmware versions we have changed the way to execute this command, as some customers accidentally started a download firmware sequence. To activate the firmware update all 3 buttons have to be pressed at the same time for 5 seconds.

Transmit FIRMWARE to the unit

Now open TRANSMISSION and select „SEND TEXTFILE“. You will have to specify the place where your firmware update file (e.g. „FX080307.txt“) is located.
 Once you have confirmed, the transmission will start immediately. The Video LED is flashing and after approx. 10s your update has finished.

WARNING !!

Do not remove the power while updating. Units damaged because of flashing them to death is not under warranty.

RESET

The HDMIFIX/DVIFIX has 11 factory PRESETs that may be customized by the user. If you need to RESET the unit please follow this procedure.
 Press MODE and +1 simultanously then power the unit and hold the buttons until all 3 LEDs are flashing. You have now succesfully restored the PRESET setting from Table 1.

Technical Data

POWER	DC 5V, 1 x 2,1 mm, min. 400mA
Video input	DVI or HDMI
Video output	DVI or HDMI
Supported resolutions	480i –1080p VGA-WUXGA, 2k
Supported framerates	24-120 Hz
Weight	70g
Dimensions	105 x 76 x 30 mm

Table 1 (Factory Presets):

- 01) 720x480p/59.94
- 02) 720x576p/50
- 03) 1280x720p/60
- 04) 1280x720p/50
- 05) 1920x1080i/60
- 06) 1920x1080i/50
- 07) 1920x1080p/60
- 08) 1920x1080p/50
- 09) 1920x1080p/24
- 10) 1024x768/60
- 11) Iiyama B2403WS

Table 2:

- | | |
|--------------------|-------------------|
| 01) 576i/50 | 02) 720x576p/50 |
| 03) 1280x720p/50 | 04) 1920x1080i/50 |
| 05) 1920x1080i/50 | 06) 1920x1080p/50 |
| 07) 1920x1080p/50 | 08) 480i/59,94 |
| 09) 640x480p/59,9 | 10) 720x480p/59,9 |
| 11) 1280x720p/60 | 12) 1920x1080i/60 |
| 13) 1920x1080p/60 | 14) 1920x1080p/24 |
| 15) 1920x1080p/25 | 16) 1920x1080p/30 |
| 17) reserved* | 18) reserved* |
| 19) reserved* | 20) 640x480/60 |
| 21) 640x480/75 | 22) 848x480/60 |
| 23) 800x600/50 | 24) 800x600/60 |
| 25) 800x600/75 | 26) 1024x768/50 |
| 27) 1024x768/60 | 28) 1024x768/75 |
| 29) 1152x864/75 | 30) 1280x768/50 |
| 31) 1280x768/60 | 32) 1280x768/75 |
| 33) 1360x768/60 | 34) 1364x768/50 |
| 35) 1364x768/60 | 36) 1364x768/75 |
| 37) 1280x1024/50 | 38) 1280x1024/60 |
| 39) 1280x1024/75 | 40) 1366x1024/60 |
| 41) 1400x1050/50 | 42) 1400x1050/60 |
| 43) 1400x1050/75 | 44) 1680x1050/60 |
| 45) 1600x1200/50 | 46) 1600x1200/60 |
| 47) 1920x1200/50 | 48) 1920x1200/60 |
| 49) 2048x1080p/50 | 50) 2048x1080p/50 |
| 51) 2048x1080p/60 | 52) 1280x800p/60 |
| 53) 1280x800p/60/2 | 54) 1440/900/60 |
| 55) reserved* | 56) reserved* |
| 57) reserved* | 58) reserved* |
| 59) reserved* | 60) reserved* |

FMT (Color Space)

- | | |
|----|-------------------------|
| rb | RGB |
| c2 | RGB + Component 4 :2:2 |
| c4 | RGB + Component 4 :4 :4 |

AUDIO 1 :

- 01) LPCM 2.0 48kHz 24bit speaker=FL/FR
- 02) DolbyDigital (AC-3) 5.1 48kHz 640kbps max.
speaker=FL/FR,LFE,FC,RL/RR
- 03) MPEG-1 2.0 48kHz 192kbps max.
speaker=FL/FR
- 04) MP3 2.0 48kHz 192kbps max.
speaker=FL/FR
- 05) MPEG-2 (multichannel) 5.1 48kHz 528kbps max.
speaker=FL/FR,LFE,FC,RL/RR
- 06) AAC5.1 48kHz 512kbps max.
speaker=FL/FR,LFE,FC,RL/RR
- 07) DTS 5.1 48kHz 1536kbps max.
speaker=FL/FR,LFE,FC,RL/RR
- 08) ATRAC 2.0 48kHz 292kbps max.
speaker=FL/FR
- 09) <AStd 09> 5.1 44. 1kHz (unspecified)kbps max.
speaker=FL/FR,LFE,FC,RL/RR
- 10) <AStd 10> 7.1 48kHz (max.)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC
- 11) <AStd 11> 7.1 96kHz (min.)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC
- 12) <AStd 12> 7.1 96kHz (unspecified)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC
- 13) <AStd 13> (reserved) 5.1 96kHz (max.)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC
- 14) <AStd 14> (reserved) 5.1 96kHz (max.)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC
- 15) <AStd 15> (reserved) 5.1 96kHz (max.)kbps max.
speaker=FL/FR,LFE,FC,RL/RR,RLC/RRC

AUDIO 2 :

- c2 2 Kanal Audio
- c6 6 Kanal Audio
- c8 8 Kanal Audio

AUDIO 3 :

- F1) 32kHz
- F2) 44.1kHz
- F3) 48kHz
- F4) 88.2kHz
- F5) 96kHz
- F6) 176kHz
- F7) 192kHz

AUDIO 4 (only selectable with AUDIO 01 PCM Mode):

- r1 16 Bit
- r2 20 Bit
- r3 24 Bit

RS-232 Commands and Pinout

To select Presets remotely please send following
RS-232 commands
Settings 57600 BAUD, 8N1

- P00 Selects PRESET 00
- P01 Selects PRESET 01
- P02 Selects PRESET 02
- P03 Selects PRESET 03
- P04 Selects PRESET 04
- P05 Selects PRESET 05
- P06 Selects PRESET 06
- P07 Selects PRESET 07
- P08 Selects PRESET 08
- P09 Selects PRESET 09
- P10 Selects PRESET 10
- P11 Selects PRESET 11
- HOT Generates Hotplug Signal

RS-232 Pin Out

3,5mm jack	SubD 9-pin
Tip	Pin 3
Ring	Pin 2
Ground	Pin 5