

Video Pattern Generator

MODEL 22293-B

Key Features:

- Multi-port independent output test application
 - HDMI port output x 3
 - SCART port x 2 (output x1 / input x1)
- Analog pixel rate 250MHz
- Digital (DVI) pixel rate 330MHz
- DVI Dual HDCP test application support
- HDCP supports Auto / Manual Mode
- HDMI V1.3C (with 24/30/36 bit deep color / xvYCC / CEC / Lip Sync)
- HDMI V1.3C maximum 687 billion color depth
- DVI and HDMI with HDCP output
- Y, Pb, Pr / Y, Cb, Cr / Y, R-Y, B-Y color difference output
- S-Video / CVBS / SCART / RGB / Color Component / D-terminal
- NTSC / PAL / SECAM signal
- EDID read / write / compare
- Optical / Coaxial audio input (SPDIF)
- Easy and variable pattern edit
- Scrolling Pattern support
- HDMI / DVI plug & play function
- Gamma correction
- ESD protection circuit
- USB Host / Device



VIDEO PATTERN GENERATOR MODEL 22293-B

The 22293-B Programmable Video Pattern Generator provides a total solution for multi-media tests that are applied in the industries of high frequency digital and analog displays such as LCM Monitor / LCD TV / PDP / Projector of today and in the future.

Large scale and high definition have become the trend as the development of video industry goes. The 22293-B designed with brand new architecture uses high performance CPU to carry the high speed/high density FPGA as Graphics Rendering Engine. It provides highly efficient system control as well as supports the up-to-date high resolution multimedia digital/video interface, HDMI V1.3, for the following features:

Higher bandwidth and Color Deep : It supports 24, 30, 36 bit (RGB or YCbCr) and new color standard xvYCC to implement real natural color and high resolution image screen with larger color range.

CEC (Consumer Electronics Control) Function : It allows users to activate the HD device that equipped with multiple CEC functions via a remote controller. The 22293-B is able to set the CEC test parameters automatically or manually and support TX (transmission) / RX (reception) / MONITOR (monitoring) & FEATURE (user property) test modes. The built-in CEC test patterns give users easier and faster test judgment.

Lip Sync: Since the technology of digital signal process improves continuously, to have a high definition video presentation, there may have potential factors to cause delay when processing the video. HDMI 1.3 allows CE devices to compensate the time difference automatically that can synchronize both video and audio to enhance viewer's feeling.

The 22293-B is able to provide Analog/Digital/TV signals concurrently:

For the analog signal RGB output, the pixel rate is

up to 250MHz that meets the RS-343A standard, and it supports Y,Pb,Pr / Y,Cb,Cr / Y,R-Y,B-Y. The digital signal output is TMDS with pixel rate up to 330MHz and the test screen resolution supports beyond UXGA. Furthermore, to cope with higher frequency signal test, the 22293-B supports DVI Dual HDCP test for dual channel DVI test application.

As to the specification of TV output, the image and chrominance signals of the 22293-B meet the NTSC, PAL and SECAM standards. The output signals include CVBS compound signals, BNC and Y/C (Luminance/ Chrominance) separated signals as well as S-Video/SCART output connectors. Tests for special TV functions such as Closed Caption, V-chip and Teletext are also supported.

In the meantime to fulfill the test application for multi-port output, the 22293-B has built-in 3 HDMI and 2 SCART ports to reduce a great deal of test time, so as to finish the tests in the fastest way possible.

As to operation, the 22293-B has equipped with a 3.5 inches multicolor display with graphic operation interface. Users can edit various timing parameters and patterns through the icons on the panel directly or using the VPG MASTER control software via the USB interface to do remote control manually or automatically. The comprehensive, rapid and easy to understand user interface can improve the test efficiency effectively. Following the rising market of new generation display the competition and demand for product quality are getting more and more sever. Under the consideration of quality and cost, the 22293-B Video Pattern Generator has built in the most complete multi-media test interfaces that can meet the requirements for various video tests in the industry. It is the best solution for the users in the field of RD, production and inspection.

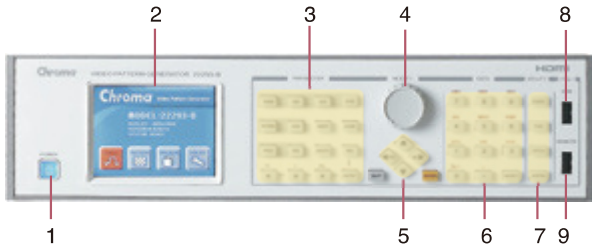


Chroma



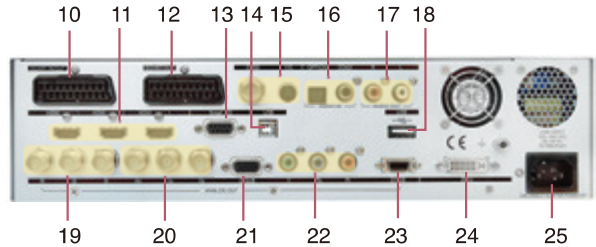
PANEL DESCRIPTIONS

Front View



- 1. Power Switch
- 2. 3.5" LCD Display
- 3. Function Group
- 4. Rotary Selector
- 5. Cursor
- 6. Data Group
- 7. Utility
- 8. USB Port
- 9. Remote for Chroma optional
- 10. SCART Input
- 11. HDMI Output
- 12. SCART Output

Rear View



- 13. Smart I/O control
- 14. Device USB port
- 15. CVBS: BNC, Y/C
- 16. Digital Audio Input : Optical & Coaxial
- 17. Analog Audio output : R/L
- 18. Host USB port
- 19. RGB/BNC Analog Output
- 20. Hs/Vs/Xs Sync Output
- 21. D-SUB Analog Output
- 22. YPbPr Component Output
- 23. D-Terminal (D1-D5)
- 24. DVI-I Output
- 25. AC Line Input

SPECIFICATIONS

ANALOG OUTPUT

Display Size	4096 x 2048
Pixel Rate Range	0.5~250MHz
Video Level	R,G,B (75 ohms) 0~1.0V programmable
Sync on Green/Level	0~0.5V On/Off programmable
White Level	0~1.2V programmable
Blank Level	7.5 IRE / 0 IRE selectable

HORIZONTAL TIMING

Total Pixels	32~8192 pixels / 1 pixels resolution
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VERTICAL TIMING

Total Pixels	4~4096 lines (non-interlace) 4~2048 lines (interlace) / 1 line programmable
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COMPOSITE SYNC

	H+V, H EXOR V, Equalization & Serration Pulse
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SEPARATE SYNC

	BNC : Hs,Vs,Xs ; D-SUB : Hs(Xs), Vs
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VIDEO FORMAT

Video Output	R, G, B / RS-343A Y, R-Y, B-Y Y, Cb, Cr / ITU 601 Y, Pb, Pr / ITU 709, RP177, SMPTE 240M DDC II B (D-SUB)
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DVI (TMDS) OUTPUT

Pixel Rate Range	25< 1 link< 165MHz / 165< 2 link< 330MHz
EDID	Read / Write / Compare / Edit
HDCP	Support HDCP V.1.0 (with Dual Mode)
Compliant	DVI 1.0 specification
Video Signal Type	RGB
Sampling Mode	4:4:4

HDMI VIDEO OUTPUT

Version	HDMI V1.3C (with 24,30,36bit deep color/xvYCC/CEC/Lip Sync)
Pixel Rate Range	25 ~ 165 MHz (TMDS CLK: 225MHz)
Support HDMI Timing	77 Timing (CEA-861D)
Pixel Repetition	4
Video Signal Type	RGB or YCbCr
Sampling Mode	RGB 4:4:4 / YCbCr 4:4:4 or 4:2:2
Bits per Component	8 / 10 / 12 @RGB & YCbCr
Color Space	RGB/ITU-R BT.601/ITU-R BT.709/xvYCC (IEC61966-2-4)/SYCC/Adobe RGB/Adobe YCC)
HDCP	HDCP V.1.2
EDID	Read / Write / Compare / Edit

HDMI AUDIO OUTPUT

Sample Rate	32, 44.1, 48, 88.2, 96, 176.4, 192KHz
Number of Channel	8 Channel (FL/FR/LR/RR/FC/LFE/R/LC/RRC)
Bits per Sample	16 / 24 bit
Waveform	Sine wave
Amplitude	-90.3 to 0.0 dBFS / -138.4 to 0.0 dBFS
Frequency Range	10Hz to 20KHz
Frequency Resolution	10Hz / Step
External Audio Input	Optical and Coaxial (S/PDIF)
Special Control Mode	Tone / Sweep / Mute / Repeat / Play Time

All specifications are subject to change without notice.
Please visit our website for the most up to date specifications.

TV OUTPUT

Output Mode	NTSC			PAL				SECAM	
Subcarrier Frequency	443	M, J	BDGHI	M	60	N	Nc	4.41/4.25	MHz
Subcarrier Stability	±50								Hz
Video Output	Composite (BNC), S-Video Burst On/Off (NTSC, PAL) Contrast programmable Brightness programmable Saturation programmable Hue programmable								
Closed Caption Support (NTSC)	C1, C2, C3, C4 / T1, T2, T3, T4								
V-CHIP (NTSC)	MPAA Rating : G, PG, PG-13, R, NC-17, X FCC Rating : TV-Y, TV-Y7, TV-G, TV-PG, TV-14, TV-MA Canada English Rating : C, C8+, G, PG, 14+, 18+ Canada French Rating : G, 8ans+, 13ans+, 16ans+, 18ans+								
Teletext (PAL)	Teletext System B Level 1, 1.5								

SDTV FORMAT

Timing	Progressive Mode Frame Rate (Hz)	Interlace Mode Frame Rate (Hz)	Standard
720 x 483	59.94P	60/1.001	SMPTE 293 ITU 601 SMPTE 170M
	50P	50	ITU 1382
720 x 576		50I	25 ITU 601

HDTV FORMAT

Timing	Progressive Mode Frame Rate (Hz)		Interlace Mode Frame Rate (Hz)		Standard
1920 x 1080	60P	60	60I	30	SMPTE 274
	59.94P	60/1.001	59.94I	30/1.001	SMPTE 274
	50P	50	50I	25	SMPTE 274
	30P	30			SMPTE 274
	29.97P	30/1.001			SMPTE 274
	25P	25			SMPTE 274
	24P	24			SMPTE 274
23.98P	24/1.001			SMPTE 274	
1920 x 1035			60I	30	SMPTE 240
			59.94I	30/1.001	SMPTE 240
1280 x 720	60P	60			SMPTE 296
	59.94P	60/1.001			SMPTE 296
	50P	50			SMPTE 296

DATA STORAGE DEVICE

Default	2000 timings + 2000 patterns
Internal Memory	3000 timings + 3000 patterns + 1000 programs
External Memory	USB Host interface

OTHERS

AC Input	100-240V, 50-60Hz, 5A maximum
Operation/Storage Temp.	+5~+40 deg.C / -20~+60 deg.C
Humidity	20~90 %

DIMENSION & WEIGHT

22293-B	88 x 350 x 350 mm / 3.46 x 13.78 x 13.78 inch (HxWxD) 5.6 kg / 12.33 lbs
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Developed and Manufactured by :

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