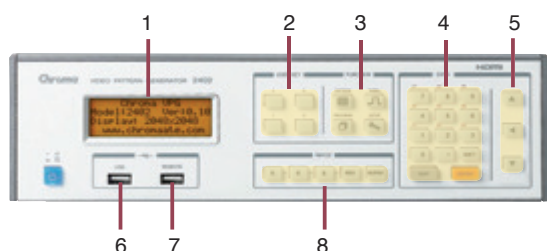## MODEL 2402

Key Features:

■ Analog pixel rate 165MHz

■ 2K x 2K Graphic size

■ DVI pixel rate 165MHz

■ HDMI V 1.3b (with xvYCC)

■ DVI & HDMI with HDCP output

■ PC remote control

■ User Define Key

■ Built-in variety of video timings
   & patterns

■ Scrolling Pattern

■ USB interface

■ High Capacity Memory

■ ESD protection circuit

■ Economy

VIDEO PATTERN GENERATOR MODEL 2402

Along with the development of display products moving toward multi-function composite and evolving to digital era, all manufacturers are facing the competition of producing high value added and low cost products to meet the diversified applications and quality demands. Seeking for a total test solution to meet those needs has become the first priority.

Chroma 2402 Video Pattern Generator with the features described below is specially designed to fit in the requirements and application of production line for LCD-TV/PDP/Monitor manufacturers.

1. Support HDMI Function
In order to meet the test requirement for multimedia display, Chroma 2402 supports the state of the art HDMI V1.3 (High Definition Multimedia Interface) with video signal resolutions up to 1080p and xvYCC color standard.

2. Exclusive Digital Signals
It supports the digital signals of DVI, HDMI and HDTV that meet the video interface requirements of most up-to-date. The mapped international standard signal sources are provided and applied in the configuration of production line planning and test workstation. The enlarged screen is able to browse the data of production test.

3. Convenient & Rapid Function
The test programs built-in or created in advance by users increase the production efficiency. Users can edit the USER KEY to

work with compound functions in specific test to save the test time.

4. Friendly USB Interface
Chroma 2402 is equipped with a convenient and automatic operation interface that all parameters can be easily set via panel or remote controlled PC through USB interface to control or save the downloaded settings or data. The data download and upload can also be done by flash disk to reduce engineer's workload in setup and management.

5. Large Capacity
It has built in large capacity of storage memory that allows users to swap different UUT without doing backup or download (1000 TIMINGS and PATTERNS, 500 PROGRAMS.) and save the customized test programs.

6. Multiple Outputs
Chroma 2402 provides 2048x2048 Graphic Size that is qualified for the HDTV high quality image output. The standard signal interfaces HDMI, DVI-I, VGA D-Sub are built in for industry application.

7. Rich Timing & Pattern Database
Rich timings and diversified patterns are built in for selection including standard static, dynamic and pattern scroll screens to check the characteristics response and white balance of UUT with auto and manual operation process. It can also use the default front/rear panel expanded mechanism to add remote or output control devices to support the application of automatic production.
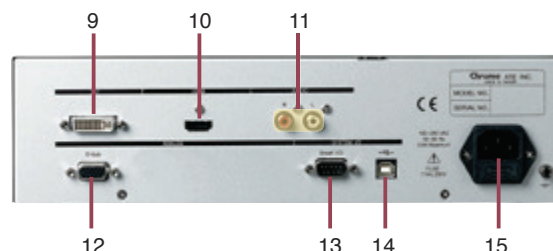
Front View

Rear View

1. LCD Display
2. User Key
3. Function Group
4. Data Group
5. Direction Key

6. USB Port
7. Remote for Chroma optional
8. Image Group for signal on/off select
9. DVI output
10. HDMI output

11. Analog Audio output: R/L
12. RGB/D-Sub Analog output
13. Smart I/O control
14. Host USB port
15. AC Line Input

SPECIFICATIONS

ANALOG OUTPUT

Display Size	2048 x 2048
Pixel Rate Range	0.5~165MHz
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	64~8192 pixels / 2 pixels resolution

VERTICAL TIMING

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

COMPOSITE SYNC

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

SEPARATE SYNC

	Hs(Xs), Vs

VIDEO FORMAT

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

AUDIO (ANALOG) OUTPUT

Frequency Range	50Hz ~ 20KHz
Waveform	Sine wave
Number of Channel	2 Channel (R / L)
Level Range	0V to 2V (at 600 Ohms Load)
Special Control Mode	Tone / Sweep / Mute / Repeat / Play Time

DVI (TMDS) OUTPUT

Pixel Rate Range	25< 1 link< 165MHz
EDID	Read / Write / Compare / Edit
HDCP	Support HDCP V.1.0 Production-Key
Compliant	DVI 1.0 specification
Video Signal Type	RGB
Sampling Mode	4:4:4

HDMI VIDEO OUTPUT

Version	HDMI V1.3b (with xvYCC)
Pixel Rate Range	25MHz~165MHz (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 bits (1024 color)
Color Space	RGB / ITU-R BT.601 / ITU-R BT.709 / xvYCC
HDCP	HDCP V1.2
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/RL/RR/FC/LFE/RLC/RRC)
Bits per Sample	16
Waveform	Sine wave
Amplitude	-90.3 to 0.0 dBFS
Frequency Range	10Hz to 20KHz
Frequency Resolution	10Hz / Step
Special Control Mode	Tone / Sweep / Mute / Repeat / Play Time

SYSTEM

Display	20x4 Character
USB Port	For Extend Device (Data/Firmware Download/Upload)
Remote Port	For Chroma optional remote controller
User Key	Marco Function for operation
Function Key	Fast Hot Key for setting

DATA STORAGE DEVICE

Default	1000 timings + 1000 patterns
Internal Memory	1000 timings + 1000 patterns + 500 programs
External Memory	USB Host interface

OTHERS

AC Input	100~240 VAC, 50~60Hz, 0.8A Maximum
Operation/Storage Temp.	+5~+40 deg.C / -20~+60 deg.C
Humidity	20~90 %

DIMENSION / WEIGHT

2402	320(W)x88(H)x240(D)mm / 3.2kg

* All specifications are subject to change without notice.