Programmable Video Pattern Generator
Model: 2228/2328

Chroma 2228 / 2328 Video Pattern Generators combine the signals of analog (250MHz) and TMDS (165MHz) / LVDS (224MHz) / TTL (200MHz) to provide the VESA standard video signal source for LCM / LCD Monitor / multimedia Monitor, it also integrates the TV (NTSC / PAL / SECAM) / SDTV / HDTV signal to fit in the multimedia display applications for the newly risen LCD TV, PDP TV, LCOS TV and DLP RPTV industries.

Users can utilize the software application, VPG PLUS, either on PC or on the Video Pattern Generator itself to edit various timing parameters, patterns and test procedures. Its complete test functions can fully meet the requirements for R&D, production test and quality assurance in all video related industries.

ANALOG / TMDS / LVDS / TTL / TV / SDTV / HDTV seven in one 2228 / 2328 Video Pattern Generators equipped with microprocessor and precision Phase Locked Loop (PLL) circuit have accuracy up to 25PPM/1PPM after calibration are featured in high accuracy, high stability and high speed. Moreover, all of its horizontal timing parameters are in one-pixel resolution, which can provide the video signal with 256-color per pixel.

For analog signal output, its pixel frequency can up to 250MHz and the RGB signals meet the RS-343A standard. It also supports Y/R-Y/B-Y, Y/Pr/Pb, Y/Cr/Cb and sync signals for tri-level output to fulfill the test requirements for HDTV.

The digital signal is in TMDS/LVDS/TTL output, the pixel frequency from TMDS is 25–165MHz/LVDS is 20–224MHz/TTL is 5–200MHz and test screen resolution over UXGA.

As to the TV output spec, the image and chromaticity of 2228 / 2328 meet the regulations of NTSC443, NTSC M/J, PAL BDGHI, SECAM standard, which the output signals include VBS composite signal with BNC and Y/C (Luminance / Chrominance) image / chromaticity separation signal with S-Video output connector.

Chroma 2228 / 2328 output patterns and timings can be programmed by PC via RS232C and loaded to memory card via the 22xx Series VPGs, meanwhile the operation sequences can be programmed and controlled by VPGplus on PC via RS232C interface. VPGplus provides a convenient operating environment for VPG users. Users can set the VPG parameters for the data of timing, pattern, program and icon, etc.

Chroma 2228 / 2328 seven in one Video Pattern Generators with high resolution test quality and multi-output can meet the multimedia display applications at present, and the features described above make the Video Pattern Generator a indispensable testing tool for the RD engineers and production manufacturers.

MODEL 2228/2328

Key Features:

- Analog pixel rate 250MHz
- TMDS pixel rate 165MHz
- LVDS pixel rate 224MHz
- TTL pixel rate 200MHz
- TV NTSC/PAL/SECAM signal support
- S-Video / CVBS composite output
- Bi-level SDTV & Tri-level HDTV Format
- HDCP V.1.0 support
- Closed Caption function (NTSC)
- V-Chip function (NTSC)
- Teletext function (PAL)
- Y,Pb,Pr,Y,Cb,Cr/YR-Y,B-Y output
- One-pixel resolution
- Display size up to 4096x2048 max
- Picture for BMP format support
- DDC2B Read / Write/Compare
- PC remote control
- Storing data with memory cards
- Supporting Gamma calibration
- ESD circuit protection built-in
- DI-D5-terminal for SDTV to HDTV

Model 2328
### Programmable Video Pattern Generator

#### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Display</td>
<td></td>
</tr>
<tr>
<td>Icon Keys:</td>
<td>For icon type selection</td>
</tr>
<tr>
<td>Function Key:</td>
<td>Timing &amp; Pattern</td>
</tr>
<tr>
<td>Alphanumeric Keys:</td>
<td>For data input</td>
</tr>
<tr>
<td>Config Key:</td>
<td>General information setting</td>
</tr>
<tr>
<td>Memory Card:</td>
<td>For storage memory expansion</td>
</tr>
<tr>
<td>Analog Signal Output R.G.B.</td>
<td></td>
</tr>
<tr>
<td>Sync Output:</td>
<td>For analog R.G.B.</td>
</tr>
<tr>
<td>I/O Port:</td>
<td>Panel remote input &amp; control output</td>
</tr>
<tr>
<td>RS-232 Interface:</td>
<td></td>
</tr>
<tr>
<td>AC Input:</td>
<td>Auto Range</td>
</tr>
<tr>
<td>TTL Output:</td>
<td>Parallel ch1/ch2</td>
</tr>
<tr>
<td>TV Output:</td>
<td>CVBS:RCA/BNC; S-Video</td>
</tr>
<tr>
<td>LVDS output:</td>
<td>Serial ch1/ch2</td>
</tr>
<tr>
<td>TMDs output:</td>
<td>DVI-I</td>
</tr>
<tr>
<td>HDTV output:</td>
<td>D5-Terminal</td>
</tr>
</tbody>
</table>

#### Analog Output

- Display Size: 2048X2048 / 4096X2048 (Option)
- Pixel Rate Range: 3.126-250MHz
- Video Level: R, G, B (75 ohms) -0.1V programmable
- Sync on Green/Level: 0.5V OnOff programmable
- While Level: 0.2V programmable
- Black Level: 7.5IRE / 0 IRE programmable

#### Horizontal Timing

- Total Pixels: 128-8192 pixels / 1 pixels resolution
- 4-996 lines (non-interface) / 6-2047 lines (interface) / 1 line resolution

#### Composite Sync

- H OR V + H OR V + R - RS-343A Equalization & Serration Pulse

#### Separate Sync

- Hs, Vs, Xs

#### TMDS Output

- Pixel Rate Range: 25MHz-165MHz
- EDID: Read / Write / Compare / Edit
- HDCP: Support HDCP V1.1 Production-Key
- DV1.0 specification
- Video Signal Type: RGB or YCbCr
- Sampling Mode: 4:4:4

#### SDTV Output

- All SDTV Timing can be programmable

#### LVDS Output

- Pixel Rate Range: 20-112MHz / 1 link / 40-224MHz / 2 link
- TTL Output: 5-100MHz / 1 link / 5-200MHz / 2 link

#### Data Storage Device

- Flash Memory (read only): 100 timings + 100 patterns
- NVDRAM (RW): 300 timings + 100 patterns + 100 programs
- Memory Card (RW): Unlimited data storage

#### Others

- AC Input: 90-132V / 180-260V - 47-63Hz auto range
- Operation/Storage Temp: -5 to 40 deg C / 20 to 85 deg C
- Humidity: 20-90%

#### Dimension / Weight

- 2228: 430x133x380 mm / 9.0 kg
- 3180: 318x130x500 mm / 5.0 kg
- 102x100x10: 10.5x3.9x1.6 inch / 0.11 lb

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