



## LCM AUTOMATIC TEST SYSTEM MODEL 2916

Chroma 2916 is a high performance, highly stable LCM Automatic Test System with modular design that can work with different signals and power modules flexibly to compose the test conditions required. It integrates the signals and power source with powerful network function and friendly interface that make it suitable for the production tests of various sizes LCMs including the standard signal source required, pattern inspection and voltage/ current measurements. Chroma 2916 is an integrated LCM ATS equipment that is most applicable for production test, quality inspection or automatic system integration.

This equipment mainly supports LVDS signals with optional TMDS/TTL/Analog/ Display Port signal converters available for purchase to meet the standard test signals requirement for various panels and digital displays of today.

2916 LCM ATS has the following test functions:

### LVDS Signal Output

It supports Signal Dual, Quad Link output test with pixel rate up to 540MHz. The test screen resolution supports up to 1920x1080 @180Hz (refresh rate) that complies with the test specification of Full HD high multiple frequency transmission technology nowadays.

### Editing Timing, Pattern & Test Sequence

Chroma 2916 supports standard JEIDA/ VESA Timing Format. Users can select the timing parameters directly or build them as need.

Through the combination of Icon, the geometry patterns required for diversified tests can be built, also the natural patterns with the extension of BMP/JPG can be inputted. In the meantime it supports MPEG/ AVI/GIF play format for animation and provides LCD Response time test. All patterns can be scaled based on the LCM resolution and previewed by pattern editor.

Besides the LVDS signals required for LCM test, the LCM electricity specification can be followed to provide parameter settings of Turn On/Turn Off, Scan Timing, Pattern, supply voltage/current high/low limit protection (OCP/OVP/UCP/UVP) and voltage Ramp Up/Ramp Down for the most complete and accurate LCM test.

### Multiple High-Precision DC Power Supply

This system has many modularized external power

supplies that are applicable for various kinds of panel sizes. It supports 8 sets of direct power output to provide the power required by LCM control chip, driver chip and backlight module via USB standard interface. Each output contains the actual readings of voltage and current. Its unique design can move the measurement point to load to prevent the transmission voltage drop also ensure the measurement accuracy reaches mV level for complete analysis of LCM working status. Meanwhile each output channel is able to simulate the timing relationship of power on/off, the Ramp-up/down waveform output and over voltage/current protection function. When the status exceeds the setting, in addition to the protection, LED and beeps are activated to remind users to fix it.

### Environment & Network Control (Optional)

For production test, Chroma 2916 allows the administrator to preset the operator' s access permission and unify the system management mode to reduce the human operation error. The user friendly graphic interface is very easy to use. Mouse and keypad can be utilized to control the cross coordinate defect positioning check and log during test. Moreover, the information including the LCM defect types and levels as well as all kinds of test report analysis are able to build and generate via the interface. Thus tests can be done in the fastest way to cut down the test time significantly no matter it is applied to R&D or production line.

To fulfill complete test application and management on the production line, network interface is used to maintain and manage the test programs, configure the hardware, upload/download data, compile statistics and write in EDID so that the system administrator can control the production status effectively from remote distance for productivity, efficiency as well as yield rate review. The system also has other external control interfaces such as I2C/SMBUS/PWM to extend the functions and enhance the system flexibility.

2916 LCM ATS is structured based on PC under the OS of Windows 98/2000/XP to give users an easy and familiar operating environment. With powerful software support and user-friendly operation interface to edit Timing / Pattern / Power / Program, the system is able to judge the electrical specification automatically and select the defect type rapidly to save the test time. In addition the test result can be exported to network easily for data gathering and analysis via network management function to provide an excellent solution for production management.

## MODEL 2916

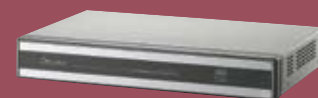
### Key Features :

- LCM signal and power source test systems
- LVDS 4 channel output
- LVDS pixel rate Signal 135MHz  
Dual 270MHz  
4 Link 540MHz
- The resolution up to 1920x1080/180Hz
- LVDS data Even/Odd switch support
- TMDS/TTL/Analog/DisplayPort support (option)
- MPEG/AVI/GIF Playback
- Easy transfer pattern file to BMP file
- Output voltage and current measurement
- Output 8 channel DC Power
- Power protection OVP/OCP/UVP/UCP
- EDID read/write/Compare
- External control interface I2C/SMBUS/ PWM individually
- Network function base on fast Ethernet (option)
- GO/NOGO fast measurement
- Operator authority control
- High efficient GUI for easy operation
- Production line process control and data collection

Main System



Single Module



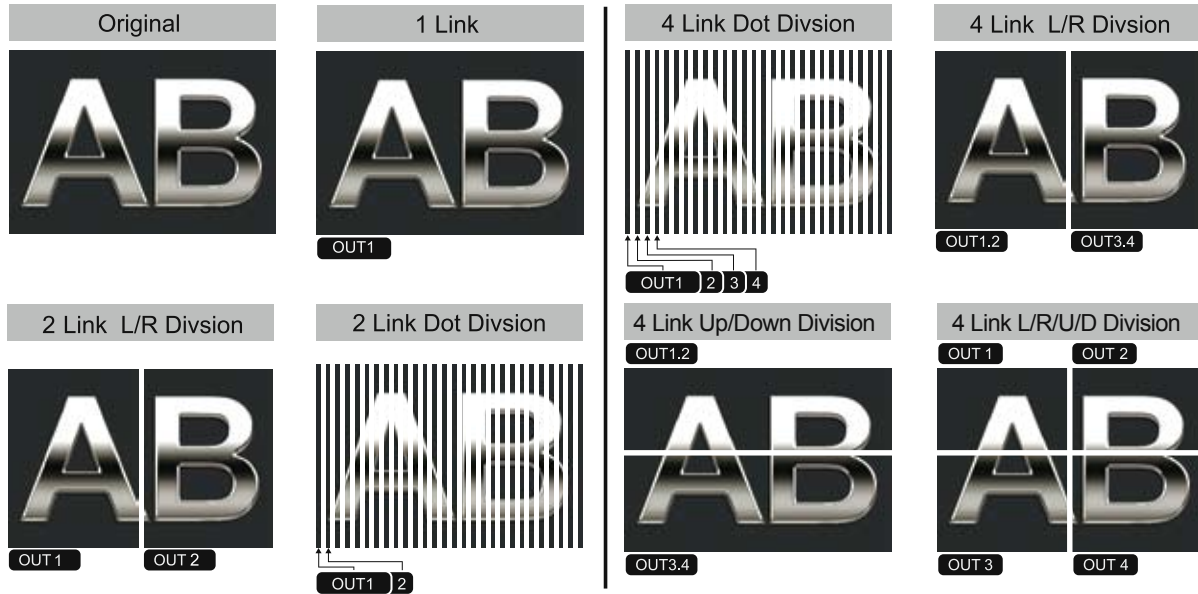
Power Module



450W

780W

## 4 LINK DATA MAPPING



## SPECIFICATION

|   |   |
|---|---|
| <b>Model</b>                                    | <b>2916</b>   |
| <b>LVDS Interface</b>                           |   |
| <b>Resolution</b>                               | 640x480; 800x600; 1024x768; 1152x864; 1280x768; 1280x960; 1280x1024; 1400x1050; 1600x900; 1600x1024; 1600x1200; 1920x1080; 1920x1200; 1280x800; 1366x768; 1280x854; 2560x1600 |
| <b>Pixel Rate</b>                               | 1 Link up to 135 MHz<br>2 Link up to 270 MHz (135 MHz x 2)<br>4 Link up to 540 MHz (135 MHz x 4)  |
| <b>Signal</b>                                   | 6/8/10 Bit and support bit rotate<br>(10 Bit for Gray Scale)  |
| <b>H,V Sync Polarity</b>                        | + or -  |
| Video signal output can turn ON OFF by software |   |

|                               |                              |
|-------------------------------|------------------------------|
| <b>General specifications</b> |                              |
| <b>AC Input Voltage</b>       | 110V~220V+/-10% (Auto Range) |
| <b>AC Input Frequency</b>     | 54Hz~66Hz                    |
| <b>Operation Temperature</b>  | 10~40°C                      |
| <b>Operation Humidity</b>     | Max 80%                      |

|   |  |
|---|--|
| <b>Dimension &amp; Weight</b>                                       |  |
| <b>2916 Main System</b>   | 150x320x422.6mm/5.91x12.6x16.64inch(HxWxD)<br>8kg/17.62lbs     |
| <b>A291600 Signal module</b>  | 47x320x200.2mm/1.85x12.6x7.88inch(HxWxD)<br>2.2kg/4.85lbs      |
| <b>A291610 Ext. Power module</b>                                    | 200x100x421.4mm/7.87x3.94x16.59inch(HxWxD)<br>4.6 kg/10.13 lbs |
| <b>2916 LCM ATS System (Main unit+ signal module+ power module)</b> | 200x420x422.6mm/7.87x16.64x16.54inch(HxWxD)<br>14.8kgs/32.6lbs |

|                                     |                               |                           |                  |                    |
|-------------------------------------|-------------------------------|---------------------------|------------------|--------------------|
| <b>Power Source</b>                 |                               |                           |                  |                    |
| <b>Channel</b>                      | <b>Channel 1</b>              | <b>Channel 2 (option)</b> | <b>Channel 3</b> | <b>Channel 4~8</b> |
| <b>Output Voltage</b>               | 2-25V                         | 2-25V                     | 5-50V            | 0-5V               |
| <b>Output Current</b>               | 0-3.5A                        | 0-6A                      | 0-20.8A          | 0-1A               |
| <b>Programmable Resolution</b>      |                               |                           |                  |                    |
| <b>Output Voltage</b>               | 20mV                          | 20mV                      | -                | -                  |
| <b>Current Protect</b>              | 5mA                           | 20mA                      | -                | -                  |
| <b>Meter Ratings</b>                |                               |                           |                  |                    |
| <b>Read back Voltage</b>            | 0-27.5V                       | 0-27.5V                   | 0-55V            | -                  |
| <b>Read back Current</b>            | 0-3.85A                       | 0-3.85A                   | 0-22A            | -                  |
| <b>Meter Resolution</b>             |                               |                           |                  |                    |
| <b>Voltage</b>                      | 20mV                          | 20mV                      | 20mV             | -                  |
| <b>Current</b>                      | 5mA                           | 5mA                       | 5mA              | -                  |
| <b>On / Off Sequence Resolution</b> |                               |                           |                  |                    |
| <b>Turn-On/Off</b>                  | 0.5ms                         | 0.5ms                     | 13ms             | 0.5ms              |
| <b>I<sup>2</sup>C BUS Function</b>  |                               |                           |                  |                    |
| <b>SDA</b>                          | 3.3/5V/device select          |                           |                  |                    |
| <b>SCL</b>                          | 50~100KHz                     |                           |                  |                    |
| <b>V-dim function</b>               |                               |                           |                  |                    |
| <b>Analog</b>                       | Analog function 0~8/0.1V step |                           |                  |                    |
| <b>V-pwm function</b>               |                               |                           |                  |                    |
| <b>Vpwm</b>                         | Selectable 3.3/5V/FV          |                           |                  |                    |
| <b>Fout</b>                         | 100~15KHz                     |                           |                  |                    |
| <b>Dout</b>                         | 0~100%1% Step                 |                           |                  |                    |
| <b>SMBUS Function</b>               |                               |                           |                  |                    |
| <b>SDA</b>                          | 3.3/5V/device select          |                           |                  |                    |
| <b>SCL</b>                          | 10~100KHz                     |                           |                  |                    |

\* All specifications are subject to change without notice.

Developed and Manufactured by :

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