



## LCM ATS

### Model 29130

29132

29133 CE

29135

### KEY FEATURES

- For full HD measurement (29132/29133/29135)
- True Color computer base LCM Testing
- LVDS/TTL(OPT)/TMDS signals support (29130 LVDS 8 bit only)
- Display Up to WUXGA @ 60Hz
- Precise programmable DC source
- Extension Power control (option)
- Power protection OVP/OCV/UVP/UCP
- Voltage/Current measurement
- GO/NOGO fast measurement
- Easy for Timing/Pattern/Program editing
- Unlimited Timing/Pattern/Program storage
- EDID read/write/compare
- LCM failure code editing & record
- Cross Mark for cell checking
- JPG/BMP/AVI/MPEG file support
- Keypad operation
- Special I/O
- Network management function (option)
- Production line process control and data collection



The Chroma 29130/29132/29133/29135 LCM Automatic Test System (ATS) which is structured in computer based system with powerful on-line network function and easy-to-use interface is designed to fulfill the key requirements of LCM tests and the production line management theory from factory. By integrating the video generator, multi-channel precision power supply and process control unit, the LCM ATS is capable of providing complete test solutions for LCM signals, patterns and electricity

The test programs performed by LCM ATS tasks can be edited by the embedded test editor. The mouse and remote keypads used by the test program editor give the production line a most complete and convenient test mode to expedite the productivity. The test functions Chroma 29130/29132/29133/29135 LCM ATS have are:

**(1). Test Program Editor:** It contains the parameters settings of power Turn On/ Turn Off, scanning timing, pattern, over and under voltage/current protection (OCP/OVP/UCP/UVP), and real-time voltage Ramp Up/Ramp Down based on the LCM electricity specifications for accurate and comprehensive tests.

**(2). Screen Quality Test:** Besides the built-in standard patterns, users can define the geometry patterns that composed of various ICONS; moreover, the natural picture file with BMP/JPG filename extension can be imported. In addition the animation function is available for the LCD Response time test. All patterns can be scaled automatically according to the LCM resolution to facilitate the pattern editing preview function.

**(3). Timing Setting and Pattern Editing:** It provides VESA timings and patterns; furthermore, the user-defined test timings and patterns can be created as per request. The LVDS / TMDS / TTL (OPTION) signals required by LCM are offered as well.

**(4). Output voltage, current measurement and judgment:** The system has 3 programmable DC power outputs 15V/4A, 16V/1A and 25V/3A and A291300 Ext. Power 25V/20A or A291301 Ext. Power 25V/10A to provide the power source required by LCM control chip, driver chip and backlight module through the RS232 interface.

**(5). Test Methods:** Mouse and keypad are used to control the cross mark for cell checking and log during test, also the LCM defect types can be built by the test patterns that minimize the test time intensely. Thus the test can be done rapidly no matter it is applied in R&D or production line.

**(6). Network Management Control(Option):** The system administrator is able to perform the test program maintenance and management, hardware configuration, data upload/download, computing and EDID read/write/compare network on-line function via the network interface for production status control at the first time as well as analysis of production, efficiency and yield rate.

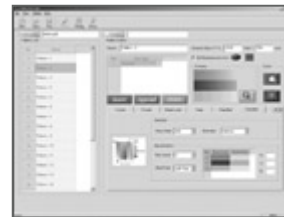
The Chroma 29130/29132/29133/29135 LCM ATS utilizes the computer based system to integrate the signal source /power source for LCM patterns and electricity specification tests, also equips with easy-to-use system program for Timing/Pattern/Power/Program editing, mouse or keypad for LCM defect log, system self test for electricity judgment and rapid selection for defect types greatly reduce the test time in production line.

### LCM Master II Software



#### Main Test Screen

- Model and Test Program Mapping Setting
- System layout and on-line status for factory production line
- Visualization management in factory to show real time information
- Real time production line fail rate display, warning appears when the failure rate is too high
- VDD/VBL voltage/current setting, real time reading for 2D display, and high speed auto voltage/current maximum/minimum judgment and warning
- Display all of the information required including, model, test date and time, detected date, production area, fail status, and etc.



#### Pattern Edit Screen

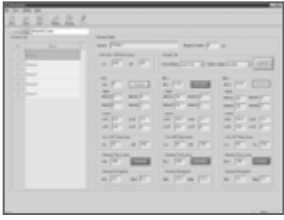
- More than 23 types of ICON for patterns creation
- Various ICON composition for logic computing
- Support BMP / JPG file format
- Various resolution auto scaling
- Support animation
- Real time preview function



#### Timing Edit Screen

- H / V Display, Sync, Back-Porch, Front-Porch, setting
- H / V Sync Polarity ± setting
- LVDS / TMDS / TTL output setting
- Pixel rate setting
- 1 / 2 Clock Mode, 6 / 8 / 10 bit link setting (29130 6 / 8 bit link setting only)
- Bit Rotate setting

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### Power Edit Screen

- 3 channel DC source setting
- OVP / OCP / UVP / UCP setting
- Vdd / Signal / Vbl On / Off sequence setting
- Vdd / Vbl / Idd / Ibl spec judgment
- Power Sweep setting



### Test Program Edit Screen

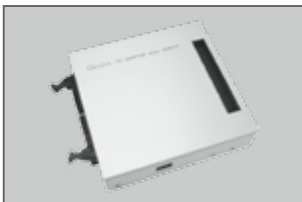
- Provide TIMING / PATTERN / POWER for LCM test programs creation
- Provide Loop function
- Provide Pre-test function

### ORDERING INFORMATION

- 29130** : LCM Automatic Test System
  - 29132** : LCM Automatic Test System
  - 29133 (CE)** : LCM Automatic Test System
  - 29135** : LCM Automatic Test System
  - A270111** : LVDS to TTL Signal Adapter
  - A291300** : Extension Power 20A
  - A291301** : Extension Power 10A
- Network management function of software**

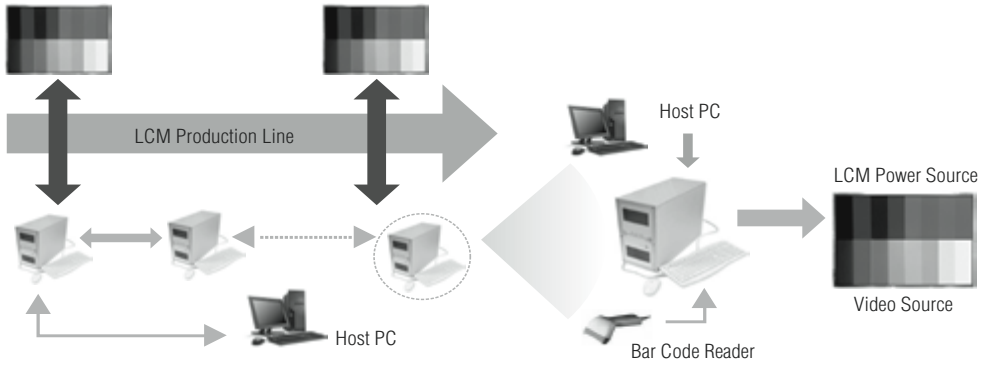


A291300/A291301



A270111

### The application of LCM ATS



The Diagram of Communication

The System of Application

| SPECIFICATIONS                                  |  |                  |  |                          |
|---|--|------------------|--|--------------------------|
| Model   | 29130  | 29132            | 29133 (CE)                             | 29135                    |
| <b>LVDS Interface</b>                           |  |                  |  |                          |
| Resolution                                      | 640x480; 800x600; 1024x768; 1152x864; 1280x768; 1280x960; 1280x1024; 1400x1050; 1600x900; 1600x1024; 1600x1200; 1920x1080; 1920x1200; 1280x800; 1366x768; 1280x854             |                  |  |                          |
| Pixel Rate                                      | 1 link 90 / 2 link 162MHz  |                  | 1 link 135/2 link 162MHz               | 1 link 135/2 link 270MHz |
| Signal  | 6 / 8 bit  |                  | 6 / 8 / 10 bit (10 bit for Gray Scale) |                          |
| H,V Sync Polarity                               | + or -   |                  |  |                          |
| Video signal output can turn ON OFF by software |  |                  |  |                          |
| <b>DVI Interface</b>                            |  |                  |  |                          |
| Resolution                                      | 640x480; 800x600; 1024x768; 1152x864; 1280x768; 1280x960; 1280x1024; 1400x1050; 1600x900; 1600x1024; 1600x1200 ; 1920x1080; 1920x1080; 1920x1200; 1280x800; 1366x768; 1280x854 |                  |  |                          |
| Pixel Rate                                      | Up to 162MHz   |                  |  |                          |
| Interface                                       | Non-Interface  |                  | Interface or Non-Interface             |                          |
| H,V Sync Polarity                               | + or -   |                  |  |                          |
| Video signal output can turn ON OFF by software |  |                  |  |                          |
| <b>Internal Power Source</b>                    |  |                  |  |                          |
| <b>Channel</b>                                  | <b>Channel 1</b>   | <b>Channel 2</b> | <b>Channel 3</b>                       |                          |
| Output Voltage                                  | 2 ~ 15V  | 3 ~ 16V          | 3 ~ 25V                                |                          |
| Output Current                                  | 0 ~ 4A   | 0 ~ 1A           | 0 ~ 3A                                 |                          |
| <b>Programmable Resolution</b>                  |  |                  |  |                          |
| Output Voltage                                  | 5mV  | 5mV              | 12.5mV                                 |                          |
| Current Protect                                 | 1mA  | 1mA              | 1mA                                    |                          |
| <b>Meter Ratings</b>                            |  |                  |  |                          |
| Read back Voltage                               | 0 ~ 20V  | 0 ~ 20V          | 0 ~ 30V                                |                          |
| Read back Current                               | 0 ~ 5A   | 0 ~ 2A           | 0 ~ 4A                                 |                          |
| <b>Meter Resolution</b>                         |  |                  |  |                          |
| Read back Voltage                               | 2mV  | 2mV              | 4mV                                    |                          |
| Read back Current                               | 0.3mA  | 0.2mA            | 0.4mA                                  |                          |
| <b>On / Off Sequence Resolution</b>             |  |                  |  |                          |
| Turn-On/Off                                     | 1ms  | 1ms              | 1ms                                    |                          |
| <b>V-dim function</b>                           |  |                  |  |                          |
| Vdim  | PWM function   |                  |  |                          |
|   | Freq: 100~500Hz / 1Hz step;  |                  |  |                          |
|   | Duty: 0%~100%;   |                  |  |                          |
|   | Level: 5V / 3.3V programmable  |                  |  |                          |
| Analog function 0~8V / 0.1V step                |  |                  |  |                          |
| <b>Others</b>                                   |  |                  |  |                          |
| AC Input Voltage                                | 110V~220V ± 10%  |                  |  |                          |
| AC Input Frequency                              | 54 Hz~66 Hz  |                  |  |                          |
| Operation Temperature                           | 10~30°C  |                  |  |                          |
| Operation Humidity                              | Max. 70%   |                  |  |                          |
| <b>Extension Power</b>                          |  |                  |  |                          |
| <b>Channel</b>                                  | <b>Channel 4</b>   |                  |  |                          |
| <b>Model</b>                                    | <b>A291300</b>   |                  |  | <b>A291301</b>           |
| Output Voltage                                  | 10 ~ 25V   |                  |  |                          |
| Output Current                                  | 0 ~ 20A  |                  |  | 0 ~ 10A                  |
| <b>Programmable Resolution</b>                  |  |                  |  |                          |
| Output Voltage                                  | 20mV   |                  |  |                          |
| Current Protect                                 | 8mA  |                  |  |                          |
| <b>Meter Ratings</b>                            |  |                  |  |                          |
| Read back Voltage                               | 0 ~ 30V  |                  |  |                          |
| Read back Current                               | 0 ~ 25A  |                  |  | 0 ~ 12A                  |
| <b>Meter Resolution</b>                         |  |                  |  |                          |
| Read back Voltage                               | 10mV   |                  |  |                          |
| Read back Current                               | 2mA  |                  |  |                          |
| <b>On / Off Sequence Resolution</b>             |  |                  |  |                          |
| Turn-On/Off                                     | 1ms  |                  |  |                          |