Chroma 27014 Flat Panel Display Tester is a complete testing solution that meets the Liquid Crystal Module testing requirements of a production line. With integrated video generator, multi-channel precision power supply and process control unit, the system allows a complete test of signal, pattern and electrical parameters of LCM through a PC or remote control box.

Software parameter interface allows the adjustments of Timing, Pattern and Power values to match the specifications of the LCM, followed by Program sequence scenario setting creating a comprehensive and effortless testing environment. Features of the Chroma 27014 FPD Tester include:

Testing Program Sequences
Setting the parameters of Turn On/Turn Off, Timing, Pattern and OCP/OVP/UCP/UVP values according to the LCM specifications provides complete and accurate testing conditions.

Timing and Pattern Editing
With the standard VESA timings and patterns already built into the system, custom geometric patterns could easily be created by importing pictures with BMP file format or assembling icons as desired within the software; all is done conveniently with the embedded real-time preview function.

Programmable Power Module
The built-in programmable DC power source adjusts power to accommodate LCM control chip, driver chip and the backlight module. Real-time readings of voltage and current are displayed and monitored. Its unique design avoids the transmission voltage drop which ensures the measurement accuracy when performing LCM operating status analysis. Each output channel is equipped with over voltage/over current protection and programmable timing relationship for Power On/Off.

MODEL 27014

KEY FEATURES

- Modular interface design for various panel testing applications
  - One LVDS module (optional)+One MIPI/eDP/V-by-One signal module (optional)
- High accuracy programmable power supply
  - VDD 2~20V/10A max, 36W max
  - VBL 2~25V/20A max, 100W Max
- Real-time voltage/current measurement
- Programmable power protection function
- Programmable On/off timing
- Editable timing, pattern and power source for test program sequences
- User friendly software
- Cross coordinate defect positioning
- Bitmap file display
- Scrolling pattern display
- eDP 1.4 signal module (optional)
  - Support up to Ultra High Definition (5Kx3K@60Hz)
  - 6/8/10 bit color depth
  - 1.62/2.16/2.43/2.7/3.24/4.32/5.4 Gbps per lane
  - 1/2/4/8 lane
  - 0/3.5/6/9.5 dB pre-emphasis
  - 200/250/300/400/450/600/800/1000mV swing level
  - PSR1 testing feature
  - PSR2 testing feature (optional)
Chroma 27014 FPD Tester integrates the signal source/power source for LCM patterns and electrical specification tests. It also features user friendly interfaces for Timing/Pattern/Power/Program editing, mouse/keypad for defect logging, system self-test for electricity analysis, and rapid selection for defect types, working altogether reduced the testing time in the production line.

**FPD Master Software**
- Easy for Timing/Pattern/Power/Program Editing
- BMP Picture Playback
- EDID Read/Write/Compare
- Cross Coordinate Defect Positioning Function
- In-Line Process Control and Data Collection
- Operator Authority Control
- GO/NO GO Fast Measurement
- MES Network Management Function (optional)

**GO/NOGO Test Screen**
- High efficiency design for operation
- In-line/off-line mode
- Power condition display (V, I by 2D)
- Over range display (OVP, OCP, UVP, UCP)
- Barcode management
- Production authority control (Lot No, Model No, ID No, Test Time, Fail Rate, etc.)
- Operation authority control (Factory, Area, Production Line, Operator, etc.) (optional)

**Test Program Edit Screen**
- TIMING/PATTERN/POWER for FPD test
- Loop function
- Pre-test function
- EDID/I²C test function

**Power Edit Screen**
- Multi-channel DC source setting
- OVP/OCP/UVP/UCP setting
- Vdd/Signal/Vbl On/Off sequence setting
- Vdd/Vbl/Idd/Ibl spec judgement
- Power sweep setting
- Real time simulation

**FPD Master Start-up**
Chroma 27014 FPD Tester adopts compact and modular design that can integrate with the LVDS, eDP, MIPI or V-by-One signal modules as desired for different testing applications. The built-in programmable power modules provide a total solution for testing signals, and are able to control and power a broad range of flat panels.

### MIPI + eDP Signal Module - A040201

**MIPI**
- Compliant: MIPI DSI v1.02.00 spec
- Resolution: 1920 x 1200@60Hz max
- Lane Count: 1/2/3/4 Lane
- Pixel Format: RGB-565/RGB-666/RGB-888

**eDP**
- Compliant: eDP v1.3 spec
- Resolution: 2560 x 1600@60Hz max (4 lane)
- Lane Count: 1/2 Lane
- Color Depth: 6/8/10 bits
- Lane Rate: 1.62/2.7 Gbps

### MIPI Signal Module - A040202

**Compliant**: MIPI DSI v1.02.00 spec
- Resolution: 1920 x 1200@60Hz max (4 lane)
- Lane Count: 1/2/3/4/8 Lane
- Pixel Format: RGB-565/RGB-666/RGB-888

### eDP Signal Module - A040203

**Compliant**: eDP v1.3 spec
- Resolution: 2560 x 1600@60Hz max (4 lane)
- Lane Count: 1/2/4/8 Lane
- Color Depth: 6/8/10 bits
- Lane Rate: 1.62/2.7 Gbps

### V-by-One Signal module - A040204

- Resolution: 5120 x 2880@60Hz max
- Lane Count: 16/8/4 lane
- Color Depth: 8/10 bits
- Data Mapping: Non/2/4/8 division

### Remote Control Box - A040206

**Display**: 20 words x 4 lines Matrix LCD Display
- Control Button:
  - Jog dial x 1
  - Panel ON/OFF x1 (with LED light)
  - Increment key x1
  - Decrement key x1
  - Function key x 9
- Connection type: D-sub 15 Pin
- USB port: USB 2.0 Host port, HS mode support (480Mbps)

### LVDS Output Module - A040207

- Resolution: 4096 x 2160@60Hz max
- LVDS Mode: VESA/JEIDA
- Color Depth: 6/8/10 bits
- Link Mode:
  - 4 channels
  - 1 Link: 10-150 MHz
  - 2 Link: 20-300 MHz
  - 4 Link: 40-600 MHz

#### PANEL DESCRIPTION

1. **VBL Output**
   - Provides VBL power for B/L power and control signal
2. **VDD Output**
   - Provides VDD power for T-CON board
3. **Signal module**
   - Used to extend eDP/MIPI/V-by-One signal (option)
4. **eDP Signal Output**
   - Supports eDP 1.4, master/slave ports
5. **Status indicators**
   - Main power ON/OFF/Error status/Signal output status
6. **VDD protection/VBL protection**
7. **LVDS Output (option)**
8. **Power Switch**
   - Main power ON/OFF
9. **PC/Remote connector**
   - Connect to computer or remote control box
10. **AC Power Input**
    - 100~240V, 50/60Hz, auto range
11. **INFO PORT**
    - System debugging port for Chroma internal use
12. **System Fan**
    - Temperature controlled with PWM
13. **SMART I/O**
    - Application port for RS-485/GPIOx5/+17V power
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>27014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Frame</td>
<td>27014</td>
</tr>
<tr>
<td>Configuration</td>
<td>Embedded MCU with FPGA graphic engine</td>
</tr>
<tr>
<td>Signal interface</td>
<td>Slot front: option for eDP/MIPI/V-by-One; Slot upper: option for LVDS 4 ch</td>
</tr>
<tr>
<td>I/C x 1 (VBL output connector)</td>
<td>Floating/0V/3.3V/5V programmable</td>
</tr>
<tr>
<td>Inverter On/Off Control (VBL output connector)</td>
<td>0V/3.3V/5V programmable</td>
</tr>
<tr>
<td>Analog Vdim control (VBL output connector)</td>
<td>0~8 V (20mA), 0.1Vstep programmable</td>
</tr>
<tr>
<td>Digital Vdim control (PWM) (VBL output connector)</td>
<td>3.3V/5V Frequency 100<del>15K Hz/1 Hz step Duty cycle 0</del>100% +/-1%</td>
</tr>
<tr>
<td>Data Store</td>
<td>Timing 50 Pattern Logic : 300 BMP : 8G Memory (999 BMP files max) Program 50 Power 50 Communication I/O Remote/PC D-Sub 15 pin Application Functions Cursor Display x, y coordinates and RGB values Motion Pattern Moving direction and speed programmable</td>
</tr>
<tr>
<td>Others</td>
<td>AC Input 100<del>240V ±10% Va, 47</del>63Hz Operating temperature +10~−40°C Storage temperature 0<del>80°C Humidity 20</del>90% Dimensions 210(W) x 300(D) x 100(H) mm Weight 5 kg/11 lbs</td>
</tr>
</tbody>
</table>

* All specifications are subject to change without notice. Please visit Chroma’s website for the latest information.  
  * All other brand and product names are trademarks or registered trademarks of their respective holders.

## Ordering Information

27014 : FPD Tester  
A040201 : eDP+MIPI Signal Module  
A040202 : MIPI Signal Module  
A040203 : eDP Signal Module  
A040204 : V-by-One Signal Module  
A040205 : eDP 1.4 Signal module  
A040206 : Remote Control Box  
A040207 : LVDS Output Module