

# Engineering Specification

Model No. **EFL-7502Q**

**74.5inches UHD High resolution LCD Monitor**

- AUO P-DID TFT LCD Panel with LED Backlights
- High performance up-Scaling characteristic
- Automatic Scanning
- Wide Viewing Angle, High Speed Response
- Enhanced Video Quality
- Embedded Power Supply
- Power Supply with enhanced Design Margin
- Test Pattern for Burn-in & Self Check
- 3 Inputs(DP, DVI, HDMI)
- RoHS Compliance

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## 1. GENERAL DESCRIPTION

### 1-1. Overview

Effinet open frame LCD Monitor EFL-7502QUI is a high performance TFT LCD monitor providing high quality image from the DP and HDMI inputs. This monitor supports wide range signal input from VGA to QUXGA resolution at vertical refresh rate of 60 Hz. It includes integrated signal processing unit, named LSP(LCD Signal Processor), which had all electronic function for user application.

It is designed for industrial use with Auto power on, up scaling performance adequate for low-resolution application and enhanced design margin for reliability.

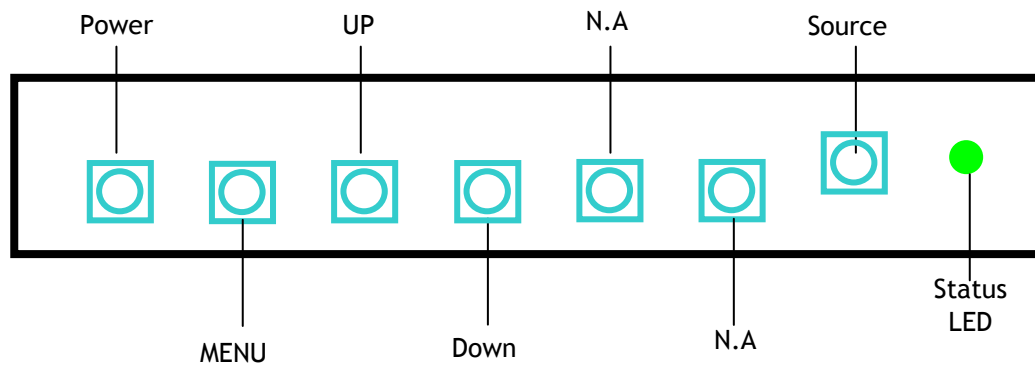
### 1-2. Quick reference table of Characteristics

|            |                          |                                                                                      |
|------------|--------------------------|--------------------------------------------------------------------------------------|
| Panel      | Size                     | 74.5" Diagonal                                                                       |
|            | Active Display Area      | 1650.24 x 928.26mm                                                                   |
|            | Type No.                 | AUO, P750QVN01.0                                                                     |
|            | Number of Pixels         | 3840 (H) x 2160 (V)                                                                  |
|            | Pixel Arrangement        | RGB Vertical Stripe                                                                  |
|            | Pixel Pitch              | 0.4298 mm x 0.4298 mm                                                                |
|            | Color Depth              | 1.07 Billions True Colors                                                            |
|            | Surface Treatments       | Hard Coating (3H), Anti-Reflective treatment                                         |
|            | Viewing Angle<br>(CR≥10) | Horizontal : 0L 89degrees<br>0L 89degrees<br>Vertical : 0L 89degrees<br>0L 89degrees |
|            | Contrast Ratio           | Typ. 4000 : 1                                                                        |
|            | Response Time            | Tr+Tf : 8 ms                                                                         |
|            | Average Brightness       | Typ. 450 cd/ m <sup>2</sup>                                                          |
|            | Frame Rate               | Typ. 120Hz                                                                           |
|            | Panel Dimension          | 1675.8 x 953.8 x 47.4 mm                                                             |
|            | CCFT                     | LEDs                                                                                 |
| Resolution | Prime                    | 3840 x 2160 @ 30 Hz                                                                  |

|                                      |                        |                                                                                                                                                                                          |
|--------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      | Standard               | 720x400 @70 Hz, 640x480 @60 Hz<br>800x600 @56/60/72/75Hz,<br>1024x768 @60/70/72/75Hz<br>1280x1024 @60/70/72/75Hz<br>1920x1080 @60Hz, 1920x1200 @60Hz<br>2560x1440 @60Hz, 2560x1600 @60Hz |
| Input Signal                         | Display Port           | Main Link                                                                                                                                                                                |
|                                      | HDMI                   | TMDS link                                                                                                                                                                                |
|                                      | DVI                    | TMDS link                                                                                                                                                                                |
| Input Signal Interface               | Display Port           | 20Pin STD DP Jack                                                                                                                                                                        |
|                                      | HDMI                   | 19 Pin HDMI Terminal                                                                                                                                                                     |
|                                      | DVI                    | 29Pin DVI Jack                                                                                                                                                                           |
| Power                                | AC Input               | AC 90 ~ 264V @60/50Hz, Universal Power                                                                                                                                                   |
|                                      | Max. power dissipation | 450 Watts                                                                                                                                                                                |
| Regulation(Safety , Ergonomics, EMC) |                        | TBD                                                                                                                                                                                      |
| Environmental Conditions             | Operating              | Temperature : 0 to 50°C / Humidity : 20 to 90%                                                                                                                                           |
|                                      | Storage                | Temperature : -20 to 60°C / Humidity : 5 to 90%                                                                                                                                          |
| White Color Temperature              |                        | 10000°K : CIE $x=0.280\pm0.015$ / $y=0.290\pm0.015$                                                                                                                                      |
| Demonstrated MTBF                    |                        | More than 35,000 hours                                                                                                                                                                   |
| Remote Controller                    | Control Switches       | Power, Source(DP,HDMI,DVI), Menu, Up/Down                                                                                                                                                |
|                                      | Distance               | Max. 7m                                                                                                                                                                                  |
|                                      | Angle                  | 30 degree angles on each side of the sensor.                                                                                                                                             |
|                                      | Length of IR Cable     | 1.5m (Between frame and IR board)                                                                                                                                                        |

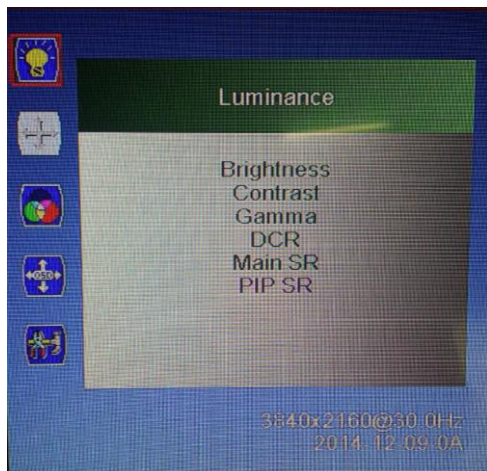
## 2. USER CONTROL & OSD

### 2-1. Key Control Board



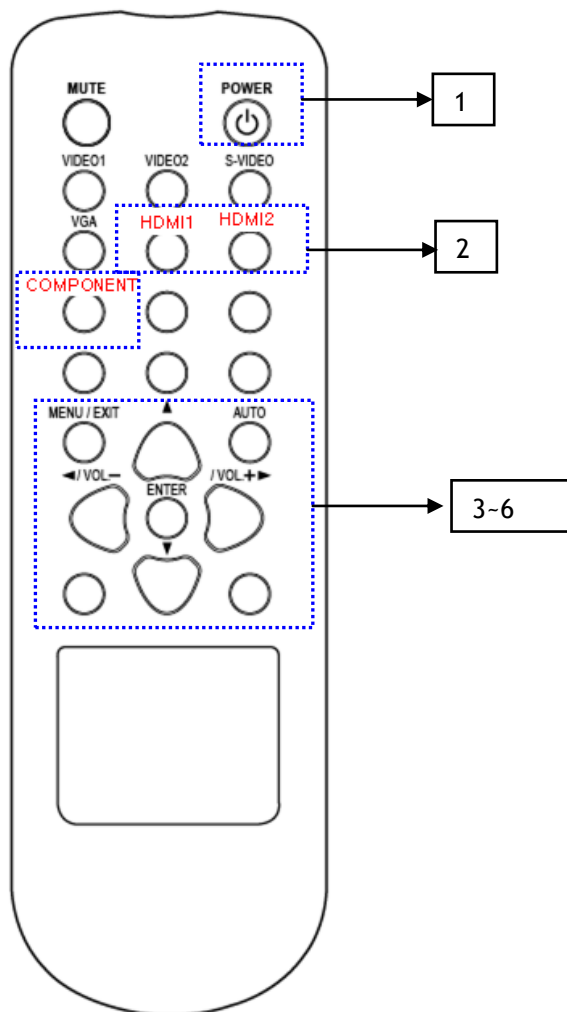
| SWITCH NAME | SWITCH FUNCTIONS                                                                                      |
|-------------|-------------------------------------------------------------------------------------------------------|
| Power       | ▪ Power On/Off.                                                                                       |
| Menu        | ▪ Activate / Deactivate the OSD Menu Window.                                                          |
| Up(+)       | ▪ Move cursor at Main Menu<br>▪ Increase the value of the selected function                           |
| Down(-)     | ▪ Move cursor at Main Menu<br>▪ Decrease the value of the selected function.                          |
| Source      | ▪ Select the input signal.<br>▪ When power off / on, the last memorized input mode will be displayed. |

## 2-2. OSD Menu Screen and Control



| OSD Menu    | Switch Functions  | Description                                                                                        |
|-------------|-------------------|----------------------------------------------------------------------------------------------------|
| Luminance   | Brightness        | Adjust the brightness of the screen.                                                               |
|             | Contrast          | Adjust the Contrast of the screen.                                                                 |
|             | Gamma             | Adjust the Gamma of the screen.                                                                    |
|             | DCR               | Set the DCR on/off the screen.                                                                     |
|             | Main SR           | Select the sharpness of the screen                                                                 |
|             | PIP SR            | Select the sharpness of the PIP screen                                                             |
| Color       | Color Temperature | Control the temperature of the color.                                                              |
|             | Red               | Control the color intensity of the screen's image.<br>(Usable when color temperature is USER mode) |
|             | Green             |                                                                                                    |
|             | Blue              |                                                                                                    |
| OSD Setting | Horizontal        | Adjust the H-position of the OSD menu.                                                             |
|             | Vertical          | Adjust the V-position of the OSD menu.                                                             |
|             | Transparency      | Adjust the Transparency of the OSD Menu.                                                           |
|             | OSD timeout       | Adjust the OFF Timer of the OSD Menu.                                                              |
| Setup       | Language          | Adjust the Language of the OSD Menu.                                                               |
|             | Input             | Input select                                                                                       |
|             | Over Scan         | Set the Over scan on/off the screen.                                                               |
|             | Reset             | Adjust the Initialize of the set.                                                                  |

## 2-3. Remocon Key Instruction



1. **POWER:** Turns the monitor on or off.
2. **Input Source:** Display all the available input sources.  
Press the button to select the desired input source.  
DVI Mode → Component,  
HDMI mode → HDMI1  
DP Mode → HDMI 2  
Video1, Video2, S-Video, VGA modes are not available.
3. **MENU/EXIT:** Displays/exits the on-screen menu.
4. **◀ /VOL- and ▶ /VOL+, ▲, ▼:** Controls the cursor in the on-screen menu
5. **ENTER:** Confirms (store or enter) your choice in the on-screen menu.
6. **AUTO:** N.A

### 3. CONNECTOR PIN DESCRIPTIONS

#### 3-1. Display Port Pin Configuration

| Pin | Symbol           | Pin | Symbol           | Pin | Symbol   |
|-----|------------------|-----|------------------|-----|----------|
| 1   | ML Lane 0+       | 8   | ML Lane 2 Shield | 15  | AUX CH + |
| 2   | ML Lane 0 Shield | 9   | ML Lane 2-       | 16  | GND      |
| 3   | ML Lane 0-       | 10  | ML Lane 3+       | 17  | AUX CH - |
| 4   | ML Lane 1+       | 11  | ML Lane 3 Shield | 18  | HPD      |
| 5   | ML Lane 1 Shield | 12  | ML Lane 3-       | 19  | RETURN   |
| 6   | ML Lane 1-       | 13  | CONFIG 1         | 20  | DP POWER |
| 7   | ML Lane 2+       | 14  | CONFIG 2         |     |          |

#### 3-2. HDMI PIN Configuration

| Pin | Symbol            | Pin | Symbol            | Pin | Symbol         |
|-----|-------------------|-----|-------------------|-----|----------------|
| 1   | T.M.D.S. Data2+   | 8   | TDMS Data0 Shield | 15  | DDC Clock(SCL) |
| 2   | TDMS Data2 Shield | 9   | T.M.D.S. Data0-   | 16  | DDC Data(SDA)  |
| 3   | T.M.D.S. Data2-   | 10  | TDMS Clock+       | 17  | CEC/GND        |
| 4   | T.M.D.S. Data1+   | 11  | TDMS Clock Shield | 18  | +5V Power      |
| 5   | TDMS Data1 Shield | 12  | TDMS Clock-       | 19  | HPD            |
| 6   | T.M.D.S. Data1-   | 13  | CEC               |     |                |
| 7   | T.M.D.S. Data0+   | 14  | No Connection     |     |                |

### 3-3. DVI PIN Configuration

| Pin | Symbol            | Pin | Symbol                          | Pin | Symbol            |
|-----|-------------------|-----|---------------------------------|-----|-------------------|
| 1   | T.M.D.S. Data2-   | 9   | T.M.D.S. Data1-                 | 17  | T.M.D.S. Data0-   |
| 2   | T.M.D.S. Data2+   | 10  | T.M.D.S. Data1+                 | 18  | T.M.D.S. Data0+   |
| 3   | TDMS Data2 Shield | 11  | TDMS Data1 Shield               | 19  | TDMS Data0 Shield |
| 4   | No Connection     | 12  | No Connection                   | 20  | No Connection     |
| 5   | No Connection     | 13  | No Connection                   | 21  | No Connection     |
| 6   | DDC Clock(SCL)    | 14  | +5V Power                       | 22  | TDMS Clock Shield |
| 7   | DDC Data(SDA)     | 15  | Ground<br>(H/V Sync, 5V return) | 23  | TDMS Clock+       |
| 8   | No Connection     | 16  | Hot Plug Detect                 | 24  | TDMS Clock-       |

#### 4. STANDARD DISPLAY MODE

| No. | Mode  | Resolution  | Horizontal |          | Vertical  |          | Pixel clock |
|-----|-------|-------------|------------|----------|-----------|----------|-------------|
|     |       |             | Frequency  | Polarity | Frequency | Polarity |             |
| 1   | VGA   | 720 x 400   | 31.47 KHz  | N        | 70.0 Hz   | P        | 28.322 MHz  |
| 2   |       | 640 x 480   | 31.47 KHz  | N        | 60.0 Hz   | N        | 25.175 MHz  |
| 3   | SVGA  | 800 X 600   | 35.16 KHz  | N / P    | 56.3 Hz   | N / P    | 36.000 MHz  |
| 4   |       | 800 X 600   | 37.88 KHz  | N / P    | 60.3 Hz   | N / P    | 40.000 MHz  |
| 5   | XGA   | 1024 X 768  | 48.36 KHz  | N / P    | 60.0 Hz   | N / P    | 65.000 MHz  |
| 6   |       | 1024 X 768  | 56.48 KHz  | N / P    | 70.07 Hz  | N / P    | 75.000 MHz  |
| 7   |       | 1024 X 768  | 57.70 KHz  | N / P    | 72.30 Hz  | N / P    | 75.235 MHz  |
| 8   |       | 1024 X 768  | 75.03 KHz  | N / P    | 60.02 Hz  | N / P    | 78.750 MHz  |
| 9   | SXGA  | 1280 X 1024 | 63.98 KHz  | N / P    | 60.0 Hz   | N / P    | 108.00 MHz  |
| 10  |       | 1280 X 1024 | 74.40 KHz  | N / P    | 69.99 Hz  | N / P    | 124.995 MHz |
| 11  |       | 1280 X 1024 | 77.91 KHz  | N / P    | 72.00 Hz  | N / P    | 134.626 MHz |
| 12  |       | 1280 X 1024 | 79.98 KHz  | N / P    | 75.0 Hz   | N / P    | 135.001 MHz |
| 13  | WUXGA | 1920 X 1080 | 66.60 KHz  | N / P    | 60.00 Hz  | N / P    | 148.500 MHz |
| 14  |       | 1920 X 1200 | 74.10 KHz  | N / P    | 59.99 Hz  | N / P    | 154.110 MHz |
| 15  |       | 2560 X 1440 | 88.80 KHz  | N/P      | 60.01 Hz  | N/P      | 241.000 MHz |
| 16  |       | 2560 X 1600 | 98.71 KHz  | N/P      | 59.97 Hz  | N/P      | 268.000 MHz |
| 17  | QUXGA | 3840 X 2160 | 262.75 KHz | N/P      | 29.98 Hz  | N/P      | 262.250 MHz |