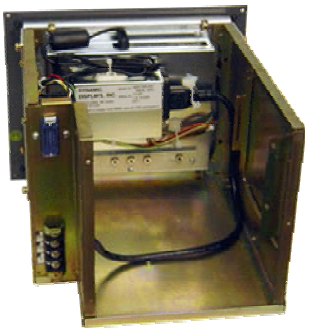
# Dynamic Displays

QUALITY EXCELLENCE SATISFACTION



# *QES1500 Progressive Series*
# *Industrial LCD Monitors User's Manual*

Please read this manual to learn about the safety precautions and get the most out of the design features of your new monitor.

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# INTRODUCTION

Thank you for purchasing the QES1500 Progressive Series Color Monitor. We are confident that you will be pleased with the performance and reliability of your new monitor. The QES1500 Progressive Series Color Monitor was designed to meet the screen performance requirements of today's demanding industrial applications. While complying with a wide variety of industrial video formats, it delivers a larger screen area, higher resolutions, and greater color accuracy than many monitors in its price range.

## *Product Description*

The QES1500 Progressive Series Industrial LCD Displays are high performance, Active Matrix color/monochrome TFT LCD monitors designed for those demanding applications that require a rugged, high quality computer display capable of sub-VGA through SXGA resolutions. These premium displays accepts a broad range of standard signal formats, enabling it to function in most modern industrial environments. For legacy or replacement applications, this LCD display can be configured to accept a wide variety of sub-VGA formats and video signal inputs. Options available are; Touch Screen, Vandal Protection Shield, Enhanced Sunlight Readability, Open Frame Configurations, Rack mount Configurations, Wall/Arm Mount Configurations, NEMA 4X stainless steel panel mount bezel and front touch controls. These computer display panels have all the features necessary for use in those industrial, manufacturing, financial, transportation and other severe environments that require bright, crisp computer imaging.

Note: For a more detail specification see specific model number spec sheet.

## *Product Safety Precautions*

**Read all of these instructions and save this manual for later use. Follow all warnings and instructions on the product.**

1. Do not cover or block the ventilation holes in the enclosure.
2. Do not insert sharp objects or spill liquid into the monitor through the cabinet slots. This may cause accidental fire, electric shock or failure.
3. Unplug the unit when not in use for an extended period of time.
4. Do not attempt to service this product yourself, since opening or removing the cover may expose you to potential electric shock. Only a qualified technician should service this product.

# MONITOR SETUP

Unlike CRT displays, the LCD panel has a fixed pixel format over a set area. So for best performance, the "native resolution" setting is always recommended. Use the following notes as a reference to setup your display.

- **For 8.4" and 12.1" monitors**: The native resolution of the LCD panel is 800 X 600; Recommended resolution is 800 X 600 @ 60 KHZ
- **For 14.1" and 15" monitors**: The native resolution of the LCD panel is 1024 X 768; Recommended resolution is 1024 X 768.@ 60 KHZ
- **For 17, 18.1" and 19" monitors**: The native resolution of the LCD panel is 1280 X 1024; Recommended resolution is 1280 X 1024 @ 60 KHZ or 1024 X 768 @ 60 Hz.

## *Display Features*

- Analog RGB Sync On Green Capable
- VESA 75/100 Standard Mounting
- DDC2B Plug & Play
- Universal Power Supply with VESA Power Management
- User Friendly OSD interface
- High Brightness and Contrast
- Wide Viewing Angle
- Front Remote Controls on Specific Models
- Tilt and Swivel Base on Specific Models
- Heavy Duty Cold Roll Steel Chassis on Specific Models
- 3/4/5 Wire BNC Inputs Option
- Anti-Reflective Protective Faceplate Option
- RCA (NTSC/PAL) and 5 Pin Mini Din (S-video) Optional
- Strengthen Anti-Reflective Protective Faceplate Optional
- Sun Light Readable Option
- TTL Input for EGA, CGA and MDA Timings Option
- Touch Screen: Resistive, Capacitive and SAW Option

## *Unpacking The Monitor*

Your LCD monitor package will consist of the following components listed on section 2.3 below. Open shipping container and lay all the components on a flat clean surface. If any component is missing, please contact Dynamic Displays as soon as possible.

**NOTES:**

- We recommend you to keep the packing box for transportation.
- In case of transporting and packing the unit in the packing box, carefully place it, keeping its panel from touching any objects

### *Package Contents*

Before operating this monitor, please make sure that all items listed are present in your package:

- LCD Monitor
- AC/DC Adapter
- AC Power Cord

- VGA Cable
- Users Manual - Download from WEB page

*Optional Items:*

These are optional items and can be ordered by contacting Dynamic Displays, Inc.

- Composite Video Cable
- 5 BNC to HD15 adaptor cable
- Audio Cable
- Mounting Hardware
- CD with Touch Screen Drives (Optional with Touch Screen)
- Universal Video Input Box (Optional)

## ***Connecting The Monitor***

No tools are required to install the LCD monitor. Simply follow the instructions outlined in the next few steps. Connectors for the signal and power are located on the back panel

- **Connect Signal Cable (VGA):** Attached the VGA cable connector with the ferrite bead closest to it, to the graphics card adaptor on your computer system and attached the other end to the monitor. Be cautious in inserting the cable properly into both connectors. If the cable does not fit it may be facing the wrong direction. Turn the cable over and try to match the shape of the connector with that of the graphics adapter.
- **Connect Power Adapter and Cable**: Connect the round shape plug end of the AC/DC adapter to the DC Power input connector of the LCD monitor. Connect the female end of the power cable to the AC power input receptacle on the AC/DC adapter. Then, plug the male end of the power cable into an AC outlet.
- **Connect DVI (Digital Video Interface) Cable (Optional):** If you have a DVI digital graphics card adapter and a DVI cable, connect it to the DVI (IN) connector of the monitor. The optional DVI graphics adapter and the DVI cable can be ordered by contacting Dynamic Displays.
- **Connect Audio signal Cable (Optional):** Connect Audio In connector of the LCD monitor and an Audio Out device (PC. DVD, CD) with the attached stereo mini cable.
- **Connect Touch Screen Cable (Optional):** Connect the optional USB or RS 232 serial touch screen connection to the driver card or system driving the touch screen controller.

If your computer was off, turn on your computer/system. Your display should now operate as a normal computer display showing your windows or whatever video is being sent to the flat panel.

**Note:** If for any reason the display goes blank and gives an “out of Range” or “No Input Signal”, your system source is putting out a signal that is out of range or non compatible with the LCD’s video A/D board. If this happens, make sure you are inputting the correct signal. If the display doesn’t work properly, it may be because:

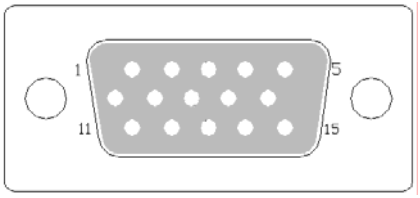
- The resolution is to high or low for the LCD.
- The power source is incorrect.

## ***Signal Input Connections***

Following are the pin out descriptions for the standard and optional connectors provided on the monitor:

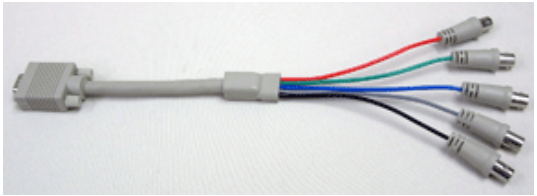
*VGA High Density HD15 Connector Pin Out*

| Pin Assignments for VGA Video HD15 Input Connector | | | |
|---|---|---|---|
| **PIN** | **CONNECTION** | **PIN** | CONNECTION |
| **1** | Red Video (75 Ohm, 0.7 Vpp) | **9** | **Key (No pin)** |
| **2** | Green Video (75 Ohm, 0.7 Vpp) | **10** | **Sync Ground** |
| **3** | Blue Video (75 Ohm, 0.7 Vpp) | **11** | **Monitor ID Bit 0** |
| **4** | Monitor ID Bit 2 | **12** | **Monitor ID Bit 1 – Bidirectional Data** |
| **5** | Ground | **13** | **Horizontal Sync (or Composite Sync)** |
| **6** | Red Video Ground | **14** | **Vertical Sync** |
| **7** | Green Video Ground | **15** | **Monitor ID Bit 3 - DDC Clock** |
| 8 | **Blue Video Ground** | | |



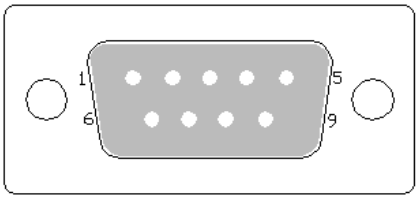

*Female BNC's to HD15 Adaptor Cable (Optional)*

| BNC to HD15 Adaptor Connections | | | | | | |
|---|---|---|---|---|---|---|
| **Video Signal Input Available** | **Signal Description** | **Red** | **Green** | **Blue** | **Horz. Sync or C-Sync (Gray Cable)** | **Vertical Sync (Black Wire)** |
| **Sync on Green (SOG)** | Composite Sync: Horizontal and Vertical Sync signals are on the Green Video Signal. | Connect | Connect | Connect | | |
| **Composite Sync (C-Sync).** | Separate Composite Sync: Horizontal and Vertical Sync signals are on the Horizontal Sync Cable only. | Connect | Connect | Connect | Connect | |
| **Separate Horizontal and Vertical Sync** | Separate Sync: Both signals (Horizontal & Vertical) are on individual cables as identified on the chart. | Connect | Connect | Connect | Connect | Connect |



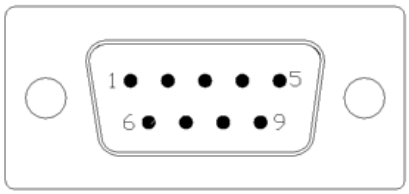
*CGA 9 Pin D-Sub Connector (Optional)*

| Pin Assignments for 9 Pin Optional CGA Color Graphics Adapter. Video Type: TTL | | |
|---|---|---|
| **PIN** | **CONNECTION** | **DESCRIPTION** |
| **1** | GND | Ground |
| **2** | GND | Ground |
| **3** | R | Red Video |
| **4** | G | Green Video |
| **5** | B | Blue Video |
| **6** | I | Intensity |
| **7** | RES | Reserved |
| **8** | HSYNC | Horizontal Sync |
| **9** | VSYNC | Vertical Sync |



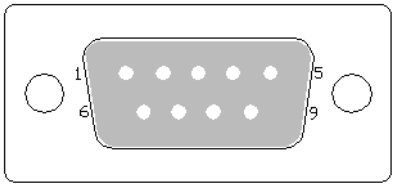

*EGA 9 Pin D-Sub Connector (Optional)*

| Pin Assignments for 9 Pin Optional EGA=Enhanced Graphics Adapter. Video Type: TTL | | |
|---|---|---|
| **PIN** | **CONNECTION** | **DESCRIPTION** |
| **1** | GND | Ground |
| **2** | SR | Secondary Red |
| **3** | PR | Primary Red |
| **4** | PG | Primary Green |
| **5** | PB | Primary Blue |
| **6** | SG/I | Secondary Green / Intensity |
| **7** | SB | Secondary Blue |
| **8** | HSYNC | Horizontal Sync |
| **9** | VSYNC | Vertical Sync |



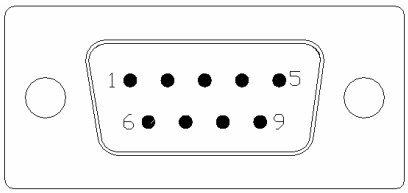
*MDA 9 Pin D-Sub Connector (Optional)*

| Pin Assignments for 9 Pin Optional MGA – Hercules Mono Graphics Adapter. Video Type: TTL | | |
|---|---|---|
| **PIN** | **CONNECTION** | **DESCRIPTION** |
| **1** | GND | Ground |
| **2** | GND | Ground |
| **3** | N/C | No Connection |
| **4** | N/C | No Connection |
| **5** | N/C | No Connection |
| **6** | I | Intensity |
| **7** | M | Monochrome Video |
| **8** | HSYNC | Horizontal Sync |
| **9** | VSYNC | Vertical Sync |




*Touch Screen 9 Pin D-Sub connector, Serial Port (Optional).*

| Pin Assignments for 9 Pin Optional Touch Screen | | |
|---|---|---|
| **PIN** | **CONNECTION** | **DESCRIPTION** |
| **1** | CD | Carrier Detect |
| **2** | RDX | Receive Data |
| **3** | TXD | Transmit Data |
| **4** | DTR | Data Terminal Ready |
| **5** | GND | System Ground |
| **6** | DSR | Data Set Ready |
| **7** | RTS | Request to Send |
| **8** | CTS | Clear to Send |
| **9** | RI | Ring Indicator |



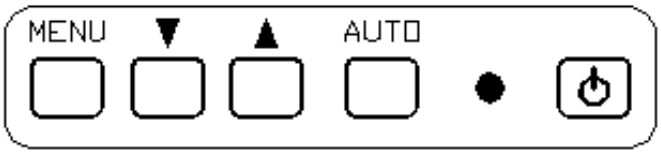
# CONTROLS & FUNCTIONS

The monitor will enter Auto Setup automatically the first time the unit is first turned on or another format is applied. If for some reason the Auto Setup does not adjust the monitor to your satisfaction, use the OSD (On Screen Display) to adjust the image to your preferences.

The OSD is composed of 5 membrane switches (as shown below) and a Bi-color LED. All the adjustments required for the monitor are done through these buttons that interface with the Menu selections on the OSD.

## *Menu OSD Control Buttons:*

- **MENU**: Selects command function
- **(-)** Decreases value. When OSD not on the screen, push "-" for volume adjust.
- **(+)**: Increase value. When OSD not on the screen, push "+" to enable/disable volume MUTE function.
- **AUTO**: Automatically adjusts for an optimal image.
- **LED**: Power ON: Green Light
  Power Saving or No Signal: Orange Light
- **POWER**: Power on/off control




## *Menu Operating Instructions:*

Your LCD monitor allows you to easily adjust the characteristics of the image being displayed. All of these adjustments are made using the OSD control buttons on the front or rear of the monitor. While you use these buttons to adjust the controls, the OSD shows you their numeric values as they change.

## *Direct Access Features:*

1. Push "Auto" to set display to the optimal image.

   Selecting and executing this control makes automatic adjustments to the horizontal and vertical size, horizontal and vertical positions, frequency, quality and phase for a quick and easy setup of the display. There will be a few seconds of delay while the Auto Setup function is in process.
2. With the OSD off, push the "MENU" button to display the main OSD menu.
3. Use "+/-" buttons to select the function, and press the "MENU" button once to activate the selected function.
4. When submenus are included use the "+/-" buttons to select the function, and press the "MENU" button once to activate the selected function.
5. After selecting a function, use the "+/-" buttons to make necessary adjustments. The setting bar moves and the numeric value indicator changes to reflect your adjustments.
6. Select the "RETURN" icon to go back to the main menu or to select another function
7. Select "EXIT" to exit from the OSD. The new Settings will be automatically saved when exiting the OSD.
8. When OSD is not on the screen:
   - Push "-" to enable volume adjust function.
   - Push "+" to enable/disable volume MUTE function.

| Direct Access Features | |
|---|---|
| **Button** | **Functions** |
| **MENU** | 1. Opens On Screen Display mode.<br>2. Selects the highlighted function. |
| **(-)** | 1. Decreases the values of the selected function.<br>2. Moves the selector light-bar down.<br>3. When OSD not onscreen, push "-" for volume adjust. |
| **+** | 1. Increases the values of the selected function.<br>4. Moves the selector light-bar up.<br>2. When OSD not onscreen, push "+/MUTE" to enable/disable volume mute. |
| **AUTO SETUP** | 1. Automatically adjusts the display for optimal image quality |
| **POWER** | 1. Turns the monitor ON/OFF.<br>2. Indicated power status of the monitor:<br>• Green: Normal Operation.<br>• Orange: Power Saving mode or no signal input.<br>• Black (No light): Power OFF. |

## ***Definitions of OSD Adjustments***

| FUNCTION | DESCRIPTION |
|---|---|
| **AUTO-SETUP** | Automatically adjusts for optimum image. |
| **BRIGHTNESS** | Adjusts the brightness of the image. |
| **CONTRAST** | Adjusts the contrast of the image. |
| **DISPLAY ADJUST** | |
| **H. Pos** | Adjust horizontal screen positioning |
| **V. Pos** | Adjust vertical screen positioning |
| **Clock** | Fine adjustment on horizontal position of video signals |
| **Phase** | Phase adjustment, The phase should be adjusted until the screen image is sharp. |
| **Vertical Size** | Use the "UP" / "DOWN" buttons to increase or decrease the Vertical Size |
| **Horizontal Size** | Use the "UP" / "DOWN" buttons to increase or decrease the Horizontal Size |
| **Return** | Exit to previous menu |

| | |
|---|---|
| **COLOR TEMPERATURE** | Allows the user to adjust for desire White Color Balance to a predetermined temperature colors or individual Red, Green and Blue Controls.<br>9300K: Bluish White for general use.<br>7500K: White close to natural light for publishing applications<br>6500K: Reddish White suited for photo applications<br>RGB individual color temperature, user setup. |
| **LANGUAGE** | Allows the user to select different OSD operating language: English, French, Dutch, Italian, Spanish |
| **OSD DISPLAY** | |
| **V Pos** | Adjust horizontal OSD positioning |
| **H Pos** | Adjust vertical OSD positioning |
| **OSD Timer** | Adjust timer to display OSD |
| **OSD Transparency** | Adjust see-through of OSD |
| **Recall** | Restore to factory settings |
| **Return** | Exit to previous menu |
| **VGA / DVI** | Selects analog or digital input<br>(Only works on DVI model option) |
| **Analog Input** | Select VGA input connector, HD15 |
| **Digital Input** | Select Digital Input Connector, DVI |
| **Return** | Exit to previous menu |
| **AUDIO** | Adjusts speaker volume. |
| **Mute** | Turn Off-ON the audio from speakers (Optional) |
| **Volume** | Increase or decrease volume output |
| **Recall** | Restore to factory settings |
| **Return** | Exit to previous menu |
| **RECALL** | Resets all functions to factory settings. |
| **EXIT** | Automatically adjusts for optimum image, |

*Notes on Memory Recall and Auto Setup:*

- Selecting "Auto Setup": Resets the "Display Adjust" settings only. This will not reset Brightness, Contrast, Color Temperature, Language, OSD Display, VGA/DVI and Audio.
- Selecting "Recall": Resets all settings to the factory default settings.
- Power off, then on:
    - When the unit is powered up using a VGA analog signal, the unit will automatically "Auto Setup". It is not necessary to manually select "Auto Setup".
    - After aligning image turning the power "Off" and then "On" again will not change any previous settings. To reset you must select "Auto Setup" and/or Recall.
    - will not affect any previous settings, that is, it will not reset, unless "auto setup" and "recall" are activated.
    - With DVI digital signal input, the "Auto Setup" and "Display Adjust" function is not necessary. The image performance will depend on your graphic card.

## ***Binary (HEX) File Version Information on OSD:***

In case problems arise with MCU file updates, use the following procedure to read the current version and file name of the MCU.

1. Monitor on with signal connected and displays normally.
2. Pull power plug off (12 VDC plug)
3. Press monitor "On" button
4. plug in the power 12 VDC plug
5. Release monitor "On" button after 2 seconds.
6. Monitor displays normally
7. OSD menu will have "FT" displayed
8. Select FT, can see the HEX file name.

## ***Burn-in Procedure***

1. Remove Power from unit - Unplug 12 VDC Plug.
2. Remove any video input signal.
3. Hold down "Power Button" on the keypad
4. While power button is held down, return the power to the unit (power up).
5. Wait for the LED on the keypad to blink once, and then lift up on the "Power Button" (remove finger).
6. Monitor will cycle through several different patterns without any input video signals.

# TROUBLESHOOTING

**LCD Pixel Statement** - The LCD unit is produced with high-precision manufacturing techniques. Nevertheless, some pixels may occasionally misfire or appear as black or colored dots. This has no effect on the recorded image and does not constitute a malfunction.
Normally, a 17" SXGA (1280 X 1024) display has nearly 4 million sub-pixels. Industry standard specification allows 8 non-performing pixels on the LCD screen, which is only 0.0002% of the total sub-pixels.

| Troubleshooting | |
|---|---|
| **Symptom** | Suggestion |
| **There Is No Picture On The Screen** | 1. Check the color of the LED indicator on the LCD monitor.<br>• "**GREEN**": During normal operation the LED light will be green. If it is green and there is no picture contact the customer service line.<br>• "**ORANGE**": Please check the connection of the VGA cable to the monitor and the connection to the computer.<br>• "**NO POWER**": Make sure the power cord is securely connected to the adapter and the light on the Adapter is green.<br>2. The signal cable should be properly connected to the display card and computer. Try disconnecting the video cable from the display and connecting to a known working display (if available) to confirm the presence of proper video.<br>3. Check whether the LCD monitor and computer power cords are connected and whether there is a supply of power.<br>4. Make sure the resolution mode is supported by the display and check settings of the display card.<br>5. Confirm that the video cable is not defective. |
| **No Signal Input** | Check the signal connection between the computer and LCD monitor. |
| **Missing Colors** | If the red, green or blue colors are missing, check the signal cable to make sure it is plugged correctly. The pins in the cable could be loose and cause a bad connection. |
| **Image Too Bright/Image Too Dark** | Adjust brightness and contrast by OSD. |
| **Irregular Image** | Check the signal connection between the computer and LCD monitor.<br>Select "Auto Adjust" button. |
| **Distorted Image** | Reset the LCD monitor. (Select "Recall" function by using OSD) |
| **Image Is Not Centered / Size Is Not Appropriate** | Use OSD Image Menu to adjust H. Position and V. Position.<br>Check image size setting.<br>Select Auto Adjust. |

| | |
|---|---|
| **Uneven Color / Color Too Dark / Dark Area Distorted / White Color Is Not White** | Use OSD Color Temperature Menu to adjust color setting. |
| **No Sound** | Check the audio signal cable connection between the computer and LCD monitor.<br>Try pressing the "+MUTE" button to disable the volume Mute function.<br>* Some models do not have speakers (sound) |
| **The Display Is Dark / Bright Or Saturated** | Verify video input levels are appropriate, $0.7V_{PP}$ for Analog inputs or 5 $V_{PP}$ for TTL input video signal. |
| **The Display Blinks** | Check the signal connection between the computer and LCD monitor. |
| **Image Blinks On And Off** | The timing is special and not programmed in the MCU.<br>Contact the Sales department at Dynamic Displays, Inc. 800-793-6862. |
| **Hook On Top Of The Image** | The LCD monitor needs the Universal Video Input Box. Contact the Sales Department at Dynamic Displays, Inc. |
| **Dim Image** | 1. Adjust the brightness and contrast by OSD.<br>2. The timing is special and not programmed in the MCU. Contact the Sales Department at Dynamic Displays.<br>3. Flat Panel may have come unplugged from inverter.<br>4. Lamp in Flat Panel may have failed.<br>* Contact Dynamic Displays, Inc. and return unit for repair if suggestion 1 or 2 does **NOT** fix the Dim Image. |
| **Lines Missing Or Not Displaying On Top Or Bottom Of The Image** | The timing is special and not programmed In the MCU.<br>Contact the Sales department at Dynamic Displays, Inc. 800-793-6862. |
| **Characters Missing On Left Or Right Of Image** | The timing is special and not programmed In the MCU.<br>Contact the Sales department at Dynamic Displays, Inc. 800-793-6862. |

# CLEANING INSTRUCTIONS

- When cleaning, remove the AC adapter from the LCD display and outlet for safety.
- Lightly wipe off dirt on the cabinet and LCD panel surface with a clean lint-free cloth soaked in a neutral cleaning solution. This removes dust and other particles that can scratch the screen. Follow its instruction when using a disposable cloth.
- Do not use thinner, benzine, alcohol or such on the plastic cabinet. These can damage the cabinet, alter its quality and cause the paint to peel off.
- Do not apply insecticides and other volatile items to the cabinet. Also do not leave rubber and vinyl products or such in contact with it for long hours. This can cause the quality to alter and the paint to peel off.
- Cleaners recommended for the LCD panel are isopropyl alcohol (without abrasive), non-ammonic glass cleaner, and watered-down neutral cleaning solution. Do not use organic solvent such as acetone and toluene.
- When the screen has dust on the LCD panel surface, wipe it off with soft moist cloth.
- Treat the LCD panel with care. Do not rub the LCD panel surface with a rough item or hit it on the surface. Also, do not strongly press the LCD panel surface. This can lead to unevenness in the screen and also failure of the product.

# QES1508 Series 8.4-inch LCD Specification

| | |
|---|---|
| **Size/Technology** | 8.4 inch SVGA Color TFT LCD Module |
| **Viewing Area** | 170.4 mm x 127.8 mm |
| **Pixel Pitch** | 0.213 mm x 0.213 mm |
| **Native Resolution** | 800 x 600 Pixels |
| **Back Light (Typical)** | 20,000 Hours |
| **Viewing Angle (H/V)** | 60°(Up) - 40°(Down) / 60°(Right) - 60°(Left) |
| **Contrast Ratio (Typical)** | 350:1 |
| **Brightness (Typical)** | 220 Cd/m2 |
| **Response Time (Typical)** | 10 mSec Rising – 25 mSec Falling |
| **Colors** | 262K Colors – 6 Bits |
| **Supported Video Formats - Standard** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz;<br>720 x 400 @ 70/85Hz;<br>800 x 600 @ 56/60/72/75/85Hz – Native Resolution<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) |
| **Sync Input Signals** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp |
| **Video Input Interface** | Standard - HD15 (VGA Analog), DVI-D<br>Optional DB-9 Input (*2)<br>Optional 3, 4, & 5-Wire BNC Inputs, HD15 and DB-9 (TTL) (*1) |
| **External Connectors** | Analog HD15 D-Sub Input; Digital DVI Input: DC Input. |
| **Power Requirements** | 100-240VAC 50-60Hz or +12VDC @ 1 A |
| **Approvals** | Designed to Comply with: FCC, CE, UL |
| **Temperature: Operating**<br>**Temperature: Storage** | 0° to 50°C @ 10-90% R.H.<br>-20° to 60°C @ 10-90% R.H |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft |
| **Mechanical Configurations** | Open Frame and Legacy Configurations |
| **Dimensions** | Open Frame: Contact DDI or Visit WEB for Mechanical Dimension<br>Legacy Replacement: Contact DDI or Visit WEB for Mechanical Dimensions |
| **Warranty** | Two Years Limited Warranty |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video)<br>HD15 to 5 BNC Female Interface cable<br>Sunlight Readable |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option.

# QES1512 Series 12.1-inch LCD Specification

| | |
|---|---|
| **Size/Technology** | 12.1 inch SVGA Color TFT LCD Module |
| **Viewing Area** | 246.0 mm x 184.5 mm |
| **Pixel Pitch** | 0.3075 mm x 0.3075 mm |
| **Native Resolution** | 800 x 600 Pixels |
| **Back Light (Typical)** | 50,000 Hours |
| **Viewing Angle (H/V)** | 70°(R) - 70°(L) / 60°(U)- 50°(L) |
| **Contrast Ratio (Typical)** | 500:1 |
| **Brightness (Typical)** | 200 Cd/m2 |
| **Response Time (Typical)** | 10 mSec Rising – 25 mSec Falling |
| **Colors** | 262K Colors – 6 Bits |
| **Supported Video Formats - Standard** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz<br>720 x 400 @ 70/85Hz<br>800 x 600 @ 56/60/72/75/85Hz<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) |
| **Sync Input Signals** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp |
| **Video Input Interface** | Standard - HD15 (VGA Analog), DVI-D<br>Optional DB-9 Input (*2)<br>Optional 3, 4, & 5-Wire BNC Inputs, HD15 and DB-9 (TTL) (*1) |
| **External Connectors** | Analog HD15 D-Sub Input; Digital DVI Input:: DC Input. |
| **Power Requirements** | 100-240VAC 50-60Hz @ 1 Amp |
| **Approvals** | Designed to Comply with: FCC, CE, UL |
| **Temperature: Operating**<br>**Temperature: Storage** | -10° to 65°C @ 10-90% R.H.<br>-30° to 70°C @ 10-90% R.H. |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft |
| **Mechanical Configurations** | Open Frame and Legacy Configurations |
| **Dimensions** | Open Frame: Contact DDI or Visit WEB for Mechanical Dimension<br>Legacy Replacement: Contact DDI or Visit WEB for Mechanical Dimensions |
| **Warranty** | Two Years Limited Warranty |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video)<br>HD15 to 5 BNC Female Interface cable<br>Sunlight Readable |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option.

# QES1514 Series 14.1-inch LCD Specification

| | |
|---|---|
| **Size/Technology** | 14.1 inch XGA Color TFT LCD Module |
| **Viewing Area** | 285.7 mm x 214.3 mm |
| **Pixel Pitch** | 0.279 mm x 0.279 mm |
| **Native Resolution** | 1024 x 768 Pixels |
| **Back Light (Typical)** | 50,000 Hours |
| **Viewing Angle (H/V)** | 40°(R) - 40°(L) / 10°(U)- 30°(L) |
| **Contrast Ratio (Typical)** | 300:1 |
| **Brightness (Typical)** | 200 Cd/m2 |
| **Response Time (Typical)** | 25 mSec |
| **Colors** | 262K Colors – 6 Bits |
| **Supported Video Formats - Standard** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz<br>720 x 400 @ 70/85Hz<br>800 x 600 @ 56/60/72/75/85Hz<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) |
| **Sync Input Signals** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp |
| **Video Input Interface** | Standard - HD15 (VGA Analog), DVI-D<br>Optional DB-9 Input (*2)<br>Optional 3, 4, & 5-Wire BNC Inputs, HD15 and DB-9 (TTL) (*1) |
| **External Connectors** | Analog HD15 D-Sub Input; Digital DVI Input:: DC Input. |
| **Power Requirements** | 100-240VAC 50-60Hz @ 1 Amp |
| **Approvals** | Designed to Comply with: FCC, CE, UL |
| **Temperature: Operating**<br>**Temperature: Storage** | -10° to 65°C @ 10-90% R.H.<br>-30° to 70°C @ 10-90% R.H. |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft |
| **Mechanical Configurations** | Open Frame and Legacy Configurations |
| **Dimensions** | Open Frame: Contact DDI or Visit WEB for Mechanical Dimension<br>Legacy Replacement: Contact DDI or Visit WEB for Mechanical Dimensions |
| **Warranty** | Two Years Limited Warranty |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video)<br>HD15 to 5 BNC Female Interface cable<br>Sunlight Readable |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option..

# QES1515 Series 15-inch LCD Specification

| | Tabletop Models | All Other Models |
|---|---|---|
| **Size/Technology** | 15” TFT Active Matrix LCD | 15” TFT Active Matrix LCD |
| **Viewing Area** | 304.128 mm x 228.096 mm | 308.8 mm x 231.9 mm |
| **Pixel Pitch** | 0.297 mm x 0.297 mm | |
| **Native Resolution** | 1024 x 768 Pixels | |
| **Back Light (Typical)** | 50,000 Hours | |
| **Viewing Angle (H/V)** | 60° (Left), 60° (Right) / 40° (Up), 60° (Down) | |
| **Contrast Ratio (Typical)** | 400:1 | 350:1 |
| **Brightness (Typical)** | 250 Cd/m2 | 450 Cd/m2 |
| **Response Time (Typical)** | 16 mSec (Tr + Tf) | |
| **Colors** | 262K – (6 Bits for R, G, B) | 16.2 Million – (6 Bits + FRC for RGB) |
| **Supported Video Formats - Standard** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz<br>720 x 400 @ 70/85Hz<br>800 x 600 @ 56/60/72/75/85Hz<br>1024 x 768 @ 60/70/75/85Hz - Native Resolution<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz | |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) | |
| **Sync Input Interface** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp | |
| **Video Input Interface** | Standard - HD15 (VGA Analog), DVI-D<br>Optional DB-9 Input (*2)<br>Optional 3, 4, & 5-Wire BNC Inputs, HD15 and DB-9 (TTL) (*1) | |
| **External Connectors** | Analog HD15 D-Sub Input; Digital DVI Input:: DC Input. | |
| **Power Requirements** | 100-240VAC 50-60Hz or +12VDC @ 4A | |
| **Approvals** | Designed to Comply with: FCC, CE, UL | |
| **Temperature: Operating**<br>**Temperature: Storage** | 0° to 50°C @ 10-90% R.H.<br>-20° to 60°C @ 10-90% R.H | |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft | |
| **Mechanical Configurations** | Table Top with Tilt & Swivel | Open Frame, NEMA Panel Mount, Rack Mount & Wall Mount |
| **Dimensions** | Tabletop or Desktop enclosure with Tilt & Swivel | Open Frame;<br>NEMA 4/12 Panel Mount<br>Rack mount; EIA RS310 D – 7 Unit<br>Wall/Arm Mount |
| **Weight** | 7 Lb. | 12 Lb. |
| **Warranty** | Two Year Limited Warranty | |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video)<br>HD15 to 5 BNC Female Interface cable<br>Sunlight Readable | |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option..

# QES1518 Series 18.1-inch Grayscale LCD Specification

| | |
|---|---|
| **Size/Technology** | 18.1 SXGA Monochrome TFT/LCD Module |
| **Viewing Area** | 359.0 mm x 287.2 mm |
| **Pixel Pitch** | 0.280 mm x 0.280 mm |
| **Native Resolution** | 1280 x 1024 Pixels |
| **Back Light** | 50,000 Hours Typical |
| **Viewing Angle (H/V)** | 170°/170° |
| **Contrast Ratio (Typical)** | 550:1 |
| **Brightness (Typical)** | 700 Cd/m2 |
| **Response Time (Typical)** | 40 mSec |
| **Colors** | 256 Gray Scales ( 8 Bits) |
| **Supported Video Formats** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz<br>720 x 400 @ 70/85Hz<br>800 x 600 @ 56/60/72/75/85Hz<br>1024 x 768 @ 60/70/75/85Hz<br>1280 x 1024 @ 60/75 - Native Resolution<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>DVI-D<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) |
| **Sync Input Signals** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp |
| **Video Input Interface** | HD15 D-Sub; DVI Socket, BNC, 5 Pin mini DIN, DC Input. |
| **Power Requirements** | 100-240VAC 50-60Hz or +12VDC @ 5A |
| **Approvals** | Designed to Comply with: FCC, CE, UL |
| **Temperature: Operating**<br>**Temperature: Storage** | 0° to 50°C @ 10-90% R.H.<br>-20° to 60°C @ 10-90% R.H |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft |
| **Mechanical Configurations** | Rack Mount 9 Units – EIA RS310D and VESA 75/100 |
| **Dimensions** | Rack Mount: 9 Units – EIA RS310 D and VESA 75/100 |
| **Weight** | 25 Lb. |
| **Warranty** | Two Year Limited Warranty |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>AGC Video<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video)<br>HD15 to 5 BNC Female Interface cable<br>Sunlight Readable |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option..

# QES1519 Series 19-inch LCD Specification

| | |
|---|---|
| **Size/Technology** | 19" TFT Active Matrix LCD |
| **Viewing Area** | 376.3 mm x 301.1 mm |
| **Pixel Pitch** | 0.294 mm x 0.294 mm |
| **Native Resolution** | 1280 x 1024 Pixels |
| **Back Light( Typical)** | 50,000 Hours |
| **Viewing Angle (H/V)** | 140°/130° |
| **Contrast Ratio (Typical)** | 600:1 |
| **Brightness (Typical))** | 250 Cd/m2 |
| **Response Time (Typical)** | 12 mSec |
| **Colors** | 16.2 Million – (6 Bits + FRC) |
| **Supported Video Formats – Standard** | 640 x 400 @ 85Hz<br>640 x 480 @ 60/72/75/85Hz<br>720 x 400 @ 70/85Hz<br>800 x 600 @ 56/60/72/75/85Hz<br>1024 x 768 @ 60/70/75/85Hz<br>1280 x 1024 @ 60/75Hz – Native Resolution<br>Optional - EGA; CGA; MDA; TTL Video Timings (*1)<br>Optional - Legacy Products Timings - Horizontal: 15 to 68KHz; Vertical 50 to 85Hz |
| **Video Input Signals** | Standard - Analog Video: 0.7Vpp @ 75 Ohms<br>Optional - TTL Video Input for EGA, CGA and MDA (*1)<br>Optional - RCA (NTSC/PAL) and 5 Pin Mini-DIN (S-video) |
| **Sync Input Signals** | Standard Sync: Separate, Composite TTL Level Sync or Sync on Green Video (Positive) 0.7Vpp-Sync (negative) 0.3Vpp |
| **Video Input Interface** | HD15 (VGA Analog) - DVI-D |
| **External Connectors** | Analog HD15 D-Sub Input; Digital DVI Input:: DC Input. |
| **Power Requirements** | 100-240VAC 50-60Hz or +12VDC @ 4A |
| **Approvals** | Designed to Comply with: FCC, CE, UL |
| **Temperature: Operating**<br>**Temperature: Storage** | 0° to 50°C @ 10-90% R.H.<br>-20° to 60°C @ 10-90% R.H |
| **Altitude: Operating**<br>**Altitude: Storage** | 0 to 10,000 ft<br>0 to 40,000 ft |
| **Mechanical Configurations** | Tabletop or Desktop enclosure with Tilt & Swivel<br>Open Frame<br>NEMA 4/12 Panel Mount:<br>Rack mount; EIA RS310 D – 7 Unit or Wall/Arm Mount |
| **Dimensions** | Tabletop: http://www.industrial-panels.com/19_in_desktop_lcd.htm<br>Panel mount: http://www.industrial-panels.com/panel_mount_lcd_monitors.htm<br>Rack mount: http://www.industrial-panels.com/rack_mount_rugged_industrial_monitor.htm<br>Wall/Arm Mount: http://www.industrial-panels.com/flat_panel_wall_mount.htm |
| **Warranty** | Two Year Limited Warranty |
| **Options** | Universal Video Input Option - 3/4/5 BNC Input (RGB) (*2)<br>TTL Video Input for EGA, CGA and MDA (*1)<br>Touch Screen: Resistive, Capacitive or SAW (USB or Serial)<br>3M - http://solutions.3m.com/wps/portal/3M/en_US/TouchSystems/TouchScreen/?WT.mc_<br>Elo TouchSystems - http://www.elotouch.com/Support/default.asp<br>ATouch Technologies Co., Ltd - http://www.a-touch.com.tw/service.htm<br>Screen Protection from Impact - Strengthened Glass<br>Optional RCA (NTSC/PAL) and 5 Pin Mini Din (S-video) or HD15 to 5 BNC Femail Interface cable |

Note (1) – With TTL Video Input Option, Note (2) – With Universal Video Input Option.

# Universal Video Input Unit Option

Dynamic Display's unique Universal Video Input Option was designed to accept a wide variety of non-standard legacy video timing formats. It converts the signal to a VGA-style video format that is acceptable to most modern LCD displays. The Universal Video unit has a unique sync discriminator circuit that will filter out extraneous sync pulses found in some legacy video signals. The phase lock loop design supplies sync pulses that are missing in other legacy video formats.

With the Universal Video Input Option, the user has the choice of switching between two separate video input ports. The first video input port is a standard HD-15 D-sub connection with fixed 75 ohm termination. The second video port has five BNC connections; Red, Green, Blue Video, Vertical Sync, and Horizontal/Composite Sync. The input impedance of each BNC inputs may be switched between 75 Ohms and Hi impedance for video loop-through applications.

Either of these two video ports can accept the following video signal format types:

- Three-wire RS170 and RS343-style analog composite sync-on-green video formats - with and without serrations and equalizing pulses.
- Four-wire analog video formats with separate composite sync.
- Five-wire Red, Green, Blue Video, with separate horizontal and vertical syncs.

In addition to these analog video timings, the Universal Video Input Option also accepts TTL video signals on Port one via a 9-pin D-sub connector for CGA and EGA monitors.

## *Connecting The Universal Video (UVI) Box*

Follow the instructions below to install the Universal Video Box to your Flat/Panel monitor.

Required tools: #2 Phillips Screw Driver

1. Mounting The UVI Box:
   - Power down the Flat Panel Monitor and unplug the Power Adapter Cable (A/C - D/C Power Supply) going to the Flat Panel monitor unit.
   - Unplug the Video Input Cable (SUB-D, 15HD) from your system going to the Flat Panel monitor unit.
   - Mounting the (UVI) Box hardware is determined by which Flat/ Panel monitor you have. The following list is for Dynamic Displays Flat Panel systems:
     a. 15" Flat Panel Plastic Enclosure
        8115061: Screw, Metric, Pan Head, Philips Head, Size M 4X8, Quantity of 4
        8120030: Washer ,Locking, Number 8, Quantity of 4
     b. 19" Flat Panel Plastic Enclosure
        8115032: Screw ,Metric, Pan Head, Philips Head, Size M 3X8, Quantity of 4
        8120027: Washer, Locking External, Size 4, Quantity of 4
     c. Rack Mount and Panel Mount
        8114455: Screw SEM, Pan Head, Philips Head ,Size 8-32 by 0.375, Quantity of 4
   - Mount the (UVI) box to the VESA 100 mounting holes located on the rear of the Flat / Panel monitor.

2. Connect Video and Power to UVI and Flat Panel Monitor
   - Plug the (VGA, SUB-D, 15HD) cable from the (UVI) box to the Flat / Panel monitor.
   - Plug the Power Adapter / Cable (A/C - D/C Power Supply) into the input connector (12 VDC) on the (UVI) box.
   - Plug one end of the DC Jumper Power Cable into the output connector (12 VDC) on the (UVI) box.
   - Plug the other end of the DC Jumper Power Cable into the Flat/Panel (12VDC) input - located on the rear of Flat / Panel monitor.
   - Determine Video Plug input from your System:
     The (UVI) box supports D-SUB or BNC:

- D-SUB, 15HD (VGA)
- D-SUB, 9HD (CGA / EGA) TTL
- BNC (COMPOSITE / SYNC ON GREEN / SEPARATE SYNC / SEPARATE COMP. SYNC)

- After the correct input is determined set switch on (UVI) box for the correct input (D-SUB) or (BNC.) Switch located next to the last BNC on the right.

## ***Universal Video Input Box Specification:***

| | |
|---|---|
| **Supported Video Input** | BNC Connector; 3/4/5 Wire RGB with Separate Sync, Composite Sync or Sync on Green.<br>HD15 VGA Standard Connector: Five Wire RGB with Separate Sync, Composite Sync or Sync on Green.<br>D-sub 9 Pin: TTL input for EGA & CGA. |
| **Frequency Range** | 15 to 68 KHz |
| **Input Interface** | 5 BNC's - HD15 (VGA Analog) - 9-pin D-Sub |
| **Power Connectors** | +12VDC Input and Loop through Voltage |
| **Power Requirements** | 12VDC @ .0.25A |
| **Dimensions** | 8" (L) x 4.3" (W) x 2" (H) |
| **Mounting** | VESA 75/100 |
| **Construction** | Rugged for Industrial Applications |
| **Weight** | 1 Lb. |
| **Warranty** | One Year Limited Warranty |

# Contact Information:

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