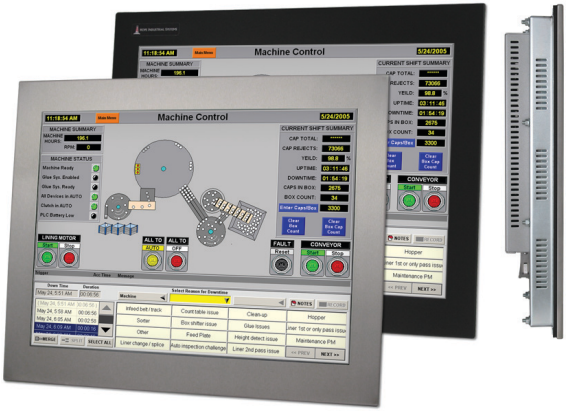
HOPE INDUSTRIAL SYSTEMS




# 20" PANEL MOUNT INDUSTRIAL MONITOR

## REVISION B

## USER MANUAL

Model No. HIS-ML20- _ _ _ B

# Table of Contents

# Safety and Regulatory Information

## WARNING!

**To prevent fire or shock hazard, do not expose live components to rain or moisture. Dangerously high voltages are present inside the unit. Do not disassemble the unit. Refer servicing to qualified personnel only.**

**This equipment is not intended for use in critical applications where its failure to operate would create immediate life threatening circumstances. Applications including, but not limited to, nuclear reactor control, aerospace navigation systems and life support systems are not appropriate for this product.**

**This product is intended to be mounted in a suitable cabinet or other enclosure. The NEMA 4, 4X, or 12 ratings are applicable only when properly installed in a like rated enclosure.**

## FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the device.

## Waste Electrical and Electronic Equipment Directive (WEEE)

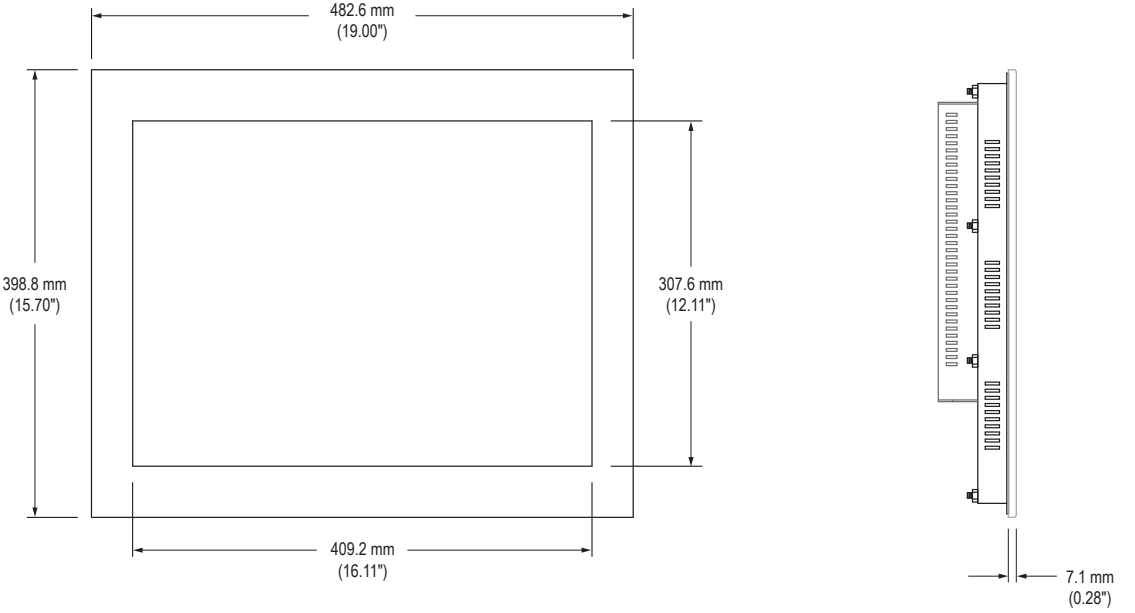
***The following information is only for EU-member states:***

The mark shown to the right is in compliance with the Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE).

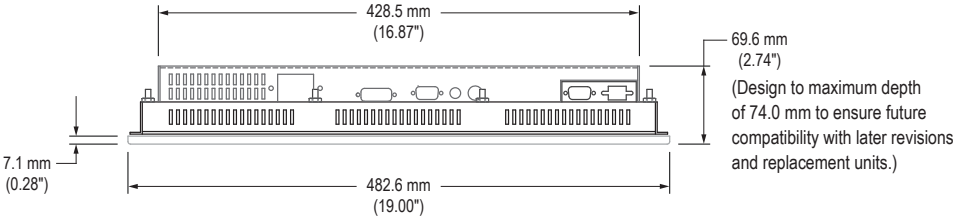
The mark indicates the requirement NOT to dispose of the equipment as unsorted municipal waste, but use the return and collection systems according to local law. Users should contact their supplier and check the terms and conditions of the purchase contract. When purchased directly from Hope Industrial Systems, you may contact technical support for disposal arrangements.

# Mechanical Drawings

## Front and Side Views




## Bottom View



# Installation Instructions

## Step 1: Prepare for Installation

### IMPORTANT!

**Perform the following steps BEFORE installation of the monitor into the panel.**

1. Ensure that sufficient power is available.
2. Ensure that sufficient space is available to allow for proper air flow into and out of the unit.
3. Ensure that the air temperature around the unit (top and bottom) *will not exceed the rated specifications of the unit.*

   - **The maximum rated temperature for the HIS-ML20 is 50°C (122°F).**
   - **Remember that heat rises – the temperature at the top of the cabinet will be much hotter than at the bottom if air inside the enclosure is not actively circulating. Even in a sealed enclosure, use of a circulation fan can greatly reduce temperature.**
   - **Also, remember that even though this product is designed to operate at 50°C, the life span of any electronic device is shortened when it is consistently operated at high temperatures. Therefore, it is wise to take steps to keep the temperature of the ambient air around the unit as low as possible.**

4. Ensure that the ambient humidity of the air around the unit *does not exceed the specifications of the unit.*

   - **The maximum rated humidity for the HIS-ML20 is 90% non-condensing.**

# Step 2: Bench-test Configuration

Make sure everything works before installing into the production environment.

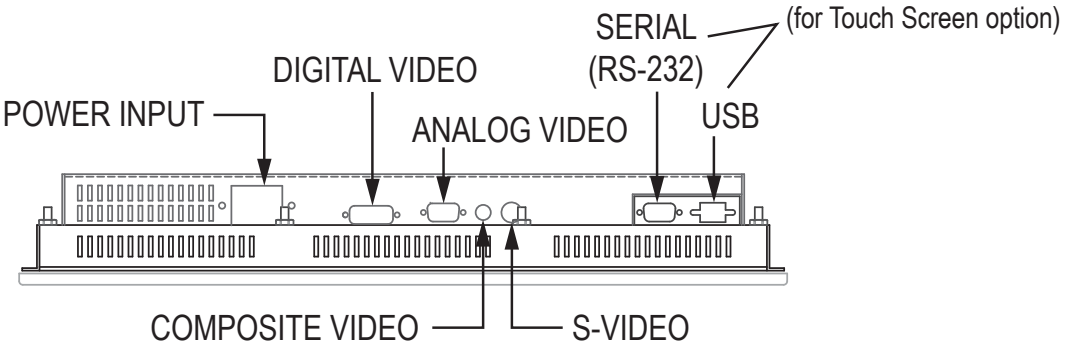
## TIP!

**If using a KVM extender, please refer to the installation instructions included with the KVM extender module. It is particularly important to bench-test the full configuration prior to final installation. This will help to identify and troubleshoot any system issues while configuration changes may still be easily made.**

## Install Cable Connections

All monitors are shipped with both a 6 ft. (1.8 m) VGA video cable and 6 ft. (1.8 m) power cable, unless longer cables were ordered in their place. If you ordered a touch screen monitor, you also received a 6 ft. (1.8 m) USB cable, unless a longer cable was ordered in its place. Serial (RS-232) cables may be ordered separately.

The cable ports are located on the rear of the monitor. Refer to the following diagram and instructions to connect power, video, and touch screen (if applicable) to your monitor.




### Video Connection

The HIS-ML20 supports analog and digital video. The HIS-ML20 also includes Composite and S-Video input ports for NTSC/PAL video signals.

***Analog VGA Video Connection***

Connect one end of the VGA video cable to the HD-15 input port on the rear of the

monitor. Connect the other end to the analog video output port on the host computer.

***Digital DVI Video Connection***

Connect one end of the DVI video cable to the DVI-D input port on the rear of the monitor. Connect the other end to the digital video output port on the host computer.

## TIP!

**If the video source has an HDMI or DisplayPort connection, this can be converted to DVI with a simple adapter. Contact Hope Industrial Systems for more information.**

### Power Connection

The HIS-ML20 is powered by 100 to 240 VAC, 0.8/0.4 A, 60/50 Hz.

Connect the AC power cable to the power input port on the rear of the monitor. Connect the other end into a nearby outlet.

## Install Touch Screen Driver

Applies to touch screen monitors only. Instructions below apply to Windows systems. Both USB and Serial ports are present on all touch screen monitors, but only one should be used to connect the touch screen interface to the monitor.

All touch screen monitors are shipped with a CD-ROM that contains documentation and drivers for all major operating systems. To be sure that you have the most current information, please check the following Internet address:

http://www.HopeIndustrial.com/Touchscreen_Drivers.htm

## IMPORTANT!

**If you will be using a USB connection, *install the touch screen driver first,* and then connect the USB cable. If you will be using a Serial connection, *connect the Serial cable first,* and then install the touch screen driver.**

## USB Connection

1. Select the appropriate driver for your operating system.
   a. If downloading from the web address listed above, select the appropriate driver for your operating system.
   b. If using the included CD, insert it into the host computer's CD-ROM drive. If the CD does not automatically run, browse the contents of the CD and open the **READ.ME.FIRST.htm** file in a web browser. Select the appropriate driver.

2. Click to "Run" the software when prompted. Follow on-screen instructions to download and execute the touch screen driver installation.

3. A cable retention bracket comes installed on the USB port on the rear of the monitor and will help to secure the cable and ensure adequate strain relief. Without removing the bracket, route one end of the USB cable through the retention bracket and connect it to the USB input port on the monitor. Connect the other end to the USB port on the host computer.

## Serial (RS-232) Connection

1. Connect one end of the Serial cable to the Serial input port on the rear of the monitor. Connect the other end to the Serial port on the host computer. Tighten the captive screws on the cable connectors to ensure adequate strain relief.

2. Select the appropriate driver for your operating system.
   a. If downloading from the web address listed above, select the appropriate driver for your operating system.
   b. If using the included CD, insert it into the host computer's CD-ROM drive. If the CD does not automatically run, browse the contents of the CD and open the **READ.ME.FIRST.htm** file in a web browser. Select the appropriate driver.

3. Click to "Run" the software when prompted. Follow on-screen instructions to download and execute the touch screen driver installation.

## Calibrate the Touch Screen

Once the driver has finished installing, you are ready to calibrate the touch screen. Open the touch screen's Control Panel by clicking on the "Elo Touchscreen" icon, located in the host computer's Control Panel. Under the "General" tab, click the "Align" button to start the calibration routine.

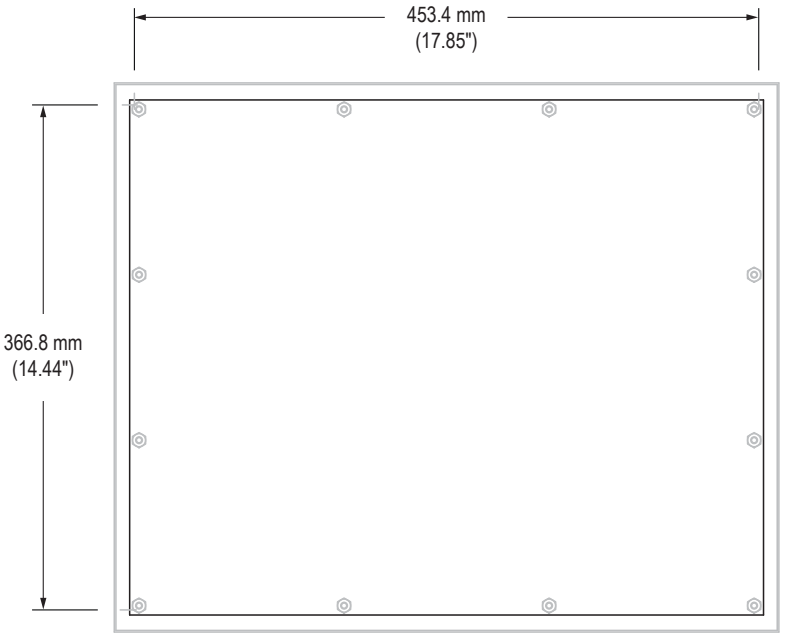
# Step 3: Install into Panel

Once you have completed the full bench-test configuration and confirmed that all components are working properly, you are ready to install the monitor into its panel cutout.

## WARNING!

**Hope Industrial Systems will not assume liability for damage to internal electronics due to improper installation. Contact Hope Industrial Systems if you need additional assistance.**

1. Refer to the drawing below for the cutout dimensions for the HIS-ML20.




2. Locate position in panel for mounting of the monitor. Ensure that there is adequate space behind the panel. Allow extra space – 25.4 mm (1.0") behind and on each side – for air ventilation.

3. Cut a rectangular hole in the panel.

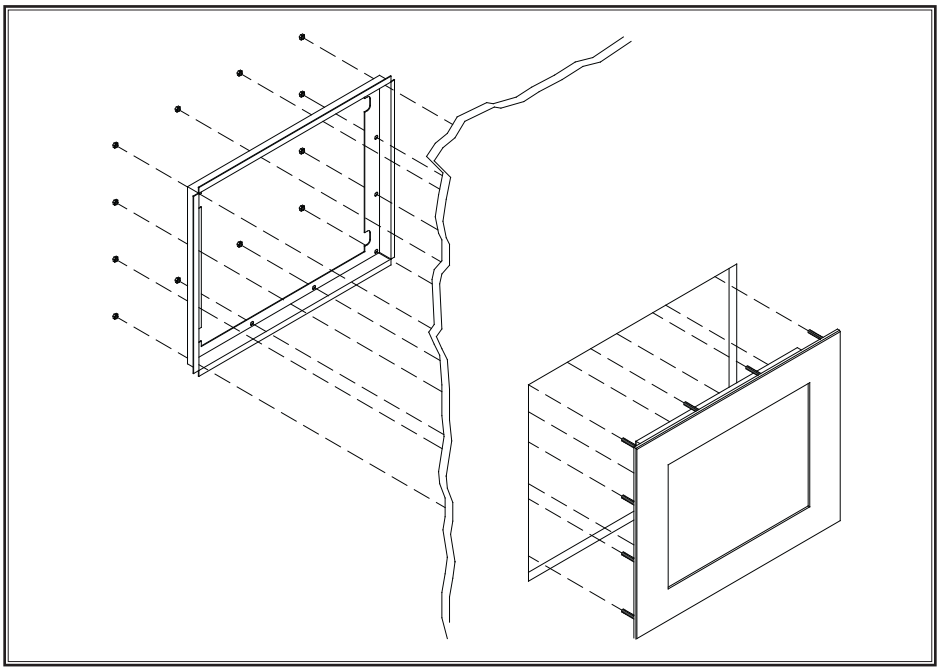
   - **Cutout Dimensions (W x H) for the HIS-ML20:**

     **453.4 mm x 366.8 mm (17.85" x 14.44"); ± 0.5 mm (0.020")**

4. Clean and deburr the panel hole.

5. Separate the rear collar from the monitor by removing the 12 nuts.

6. Refer to the enclosure mounting diagram below.



7. Insert the unit into the front of the panel and re-attach the collar.

   **NOTE:** Contact Hope Industrial Systems if for any reason your application does not allow for installation of the collar.

8. Tighten all 12 nuts to a torque of 10-15 inch-pounds to ensure a watertight seal between the bezel gasket on the monitor and the equipment panel. Go around all nuts twice to ensure an even compression on gasket.

   **NOTE:** If a torque wrench is not available, tighten all nuts evenly until bezel sits 1.6 to 2.4 mm (1/16" to 3/32") off the front of the panel.

# Video Settings

## Setting the Timing Mode

Setting the timing mode of your computer graphics adapter (or other video source) is important for maximizing the quality of the screen image and for minimizing eye strain. The timing mode consists of the resolution (e.g. 1600 x 1200) and refresh rate (or vertical frequency; e.g. 60 Hz). After setting the timing mode, use the On-Screen Display (OSD) controls to adjust the screen image.

**TIP!**

**For the best picture quality, set your computer graphics adapter timing mode to:**

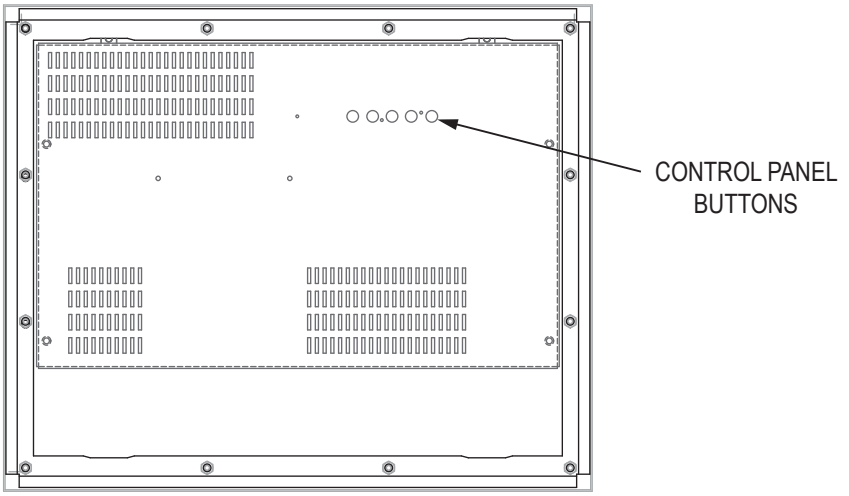
**VESA 1600 x 1200 @ 60 Hz**

Please refer to the computer graphics adapter manufacturer's manual for instructions on setting the resolution and timing mode. In Microsoft Windows, these settings may be found at the following location:

- **2000, XP:** Control Panel > Display > Settings
- **Vista:** Control Panel > Personalization > Display Settings
- **Windows 7, 8:** Control Panel > Appearance and Personalization > Adjust Screen Resolution

# Control Panel Buttons

Use the control panel buttons located on the back of the monitor to display and adjust various settings on the On-Screen Display (OSD) menu.




1. To display the Main Menu, press the Menu button.

   **NOTE:** All OSD menus and adjustments screens disappear automatically after 20 seconds. This is adjustable through the Menu Timer setting in the Menu Settings menu.

2. To select a control to adjust, press the minus [ – ] or plus [ + ] button to scroll through the menu.

3. Press the Menu button to open the menu for a selected control.

4. Press the minus [ – ] or plus [ + ] button to adjust the control. Press the Menu button to save the adjustments.

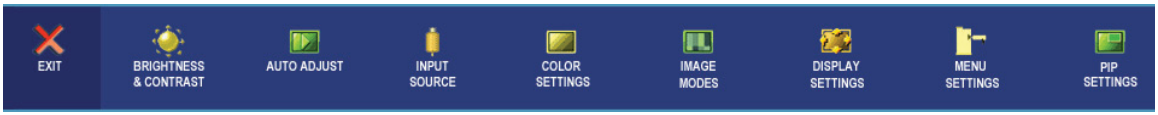
5. To return to the main OSD menu, scroll to the "Back" option and press the Menu button.

6. To exit the OSD menu, scroll to the "Exit Menu" option and press the Menu button.

| Button | Control | Functions |
|---|---|---|
|  | **Input Source Select** | Scrolls through the four video signal options to select the input source:<br>• VGA input<br>• DVI-D input<br>• S-Video input<br>• Composite input |
|  | **Menu / Enter** | • Opens the OSD menu.<br>• Displays the control screen for the highlighted control. |
|  | **Minus / Left** | Scrolls down or left and decreases adjustments for the selected control. |
|  | **Plus / Right** | Scrolls up or right and increases adjustments for the selected control. |
|  | **Power** | • Turns the monitor on and off.<br>• The Power Indicator light glows green during normal operation and orange when the monitor is in Power Saving mode. |

# On-Screen Display (OSD) Menus

To open the OSD menu, press the Menu button once.




| Main Menu | Description |
|---|---|
| **Brightness & Contrast** | Includes the Brightness and Contrast functions. |
| **Auto Adjust** | Optimizes the display setting for the best image.<br>**NOTE:** Auto Adjust is only available when using the analog VGA connector. |
| **Input Source** | Allows the user to select between different video signals that may be connected to the monitor. |
| **Color Settings** | Adjusts the color setting mode and color temperature. |
| **Image Modes** | Provides three image modes for different usage. |
| **Display Settings** | Includes the Wide Mode, Horizontal Position, Vertical Position, Sharpness, Zoom, Horizontal Pan, Vertical Pan, Pixel Clock, Phase, Display Info, and Display Reset functions. |
| **Menu Settings** | Includes the Language, Menu Horizontal Position, Menu Vertical Position, Menu Timer, Transparency, Menu Rotation, Menu Lock, Factory Reset, and DDC/CI functions. |
| **PIP Settings** | This function brings up a window displaying image from another input source. |

## Brightness & Contrast Menu

The Brightness and Contrast menu includes the Brightness and Contrast functions.

| Brightness & Contrast Menu | Description |
|---|---|
| **Brightness** | Adjusts the luminance of the backlight. |
| **Contrast** | Adjusts the difference between the darkness and lightness of the screen image.<br><br>**NOTE:** Contrast adjustment is not available when using the DVI connector. |

## Auto Adjust Menu

The Auto Adjust menu optimizes the display setting for the best image.

**NOTE:** Auto Adjust is only available when using the analog VGA connector.

## Input Source Menu

The Input Source menu allows the user to select between different video signals that may be connected to the monitor.

| Input Source Menu | Description |
|---|---|
| **VGA** | Select VGA input for analog VGA signals. |
| **DVI-D** | Select DVI-D input for digital DVI signals. |
| **S-Video** | Select S-Video input for NTSC/PAL signals. |
| **Composite** | Select Composite input for NTSC/PAL signals. |
| **Scan for Sources** | Scans for available input signals. |

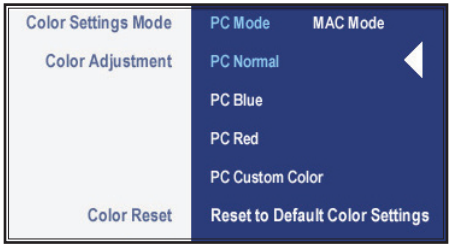
## Color Settings Menu

The Color Settings menu adjusts the color setting mode and color temperature. It provides several color adjustment modes, including preset color temperatures and individual adjustments for red, green, and blue.

**NOTE:** There are different Color Settings menus for VGA/DVI-D and Video inputs.

### VGA/DVI-D Input Color Menu

The Color Settings menu for VGA/DVI-D inputs includes the Color Settings Mode, Color Adjustment, and Color Reset functions.




| Color Settings Menu | Description |
|---|---|
| **Color Settings Mode** | Selects the color mode for PC or Mac. |

| Color Settings Menu | Description |
|---|---|
| **Color Adjustment** | • **PC Normal** is the factory default setting.<br>• **PC Blue** adds a bluish tint to the screen image (used in most text-based applications).<br>• **PC Red** adds a redder tint to the screen image.<br>• **PC Custom** allows individual adjustments for red (R), green (G), and blue (B). |
| **Color Reset** | Returns monitor color settings to the original factory settings. |

### Video Input Color Menu

The Color Settings menu for Video inputs includes individual adjustments for red, green, and blue, as well as Hue, Saturation, and Color Reset functions.


| Color Settings Menu | Description |
|---|---|
| **Red / Green / Blue Adjust** | Allows individual adjustments for red, green, and blue. |
| **Hue** | Adjusts the color tint of the screen image. |
| **Saturation** | Adjusts the color brightness of the screen image. |
| **Color Reset** | Returns monitor color settings to the original factory settings. |

## Image Modes Menu

There are three images modes for different usage.

**NOTE:** There are different Image Modes menus for VGA/DVI-D and Video inputs.

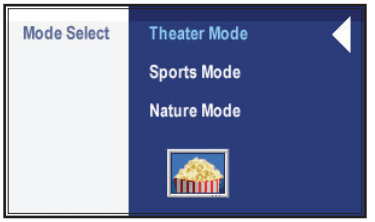
## VGA/DVI-D Input Image Modes Menu

The Image Modes menu for VGA/DVI-D inputs includes Desktop Mode, Multimedia Mode, and Gaming Mode.


| Image Modes Menu | Description |
|---|---|
| **Desktop Mode** | Optimizes the screen for desktop applications. |
| **Multimedia Mode** | Optimizes the screen for multimedia applications, such as video playback. |
| **Gaming Mode** | Optimizes the screen for gaming applications. |

## Video Input Image Modes Menu

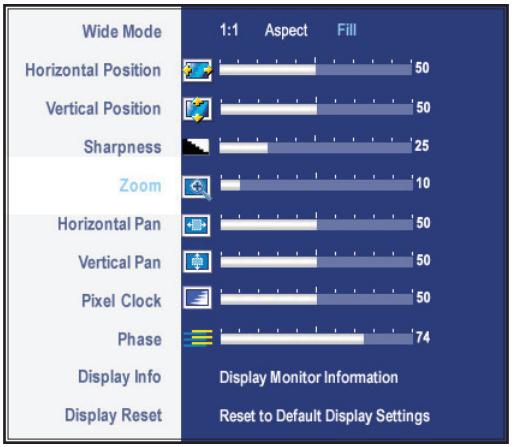
The Image Modes menu for Video input includes Theater Mode, Sports Mode, and Nature Mode.




| Image Modes Menu | Description |
|---|---|
| **Theater Mode** | Optimizes the screen for movie playback. |
| **Sports Mode** | Optimizes the screen for sports scenes. |
| **Nature Mode** | Optimizes the screen for nature scenes. |

## Display Settings Menu

The Display Settings menu includes the Wide Mode, Horizontal Position, Vertical Position, Sharpness, Zoom, Horizontal Pan, Vertical Pan, Pixel Clock, Phase, Display Info, and Display Reset functions.

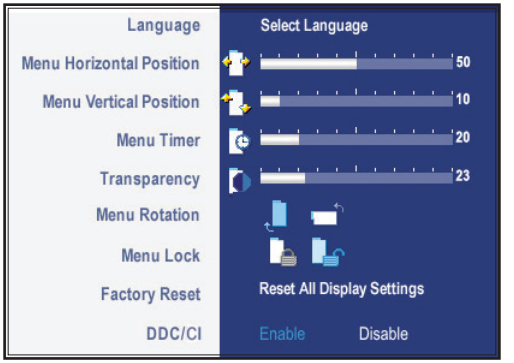



| Display Settings Menu | Description |
|---|---|
| **Wide Mode** | Adjusts the image ratio to 1:1, Aspect, or Fill.<br><br>**NOTE:** The Wide Mode function is not adjustable if the monitor is set to its optimal resolution of 1600 x 1200. |
| **Horizontal Position** | Moves the screen image left and right. |
| **Vertical Position** | Moves the screen image up and down. |
| **Sharpness** | Adjusts the clarity of the screen to make the image sharper or softer.<br><br>**NOTE:** The Sharpness function is not adjustable if the monitor is set to its optimal resolution of 1600 x 1200. |

| Display Settings Menu | Description |
|---|---|
| **Zoom** | Enlarges the screen image to focus on a specific area of interest. Use the Horizontal Pan and Vertical Pan functions to move the screen image.<br><br>**NOTE:** The Zoom function is not adjustable if the monitor is set to its optimal resolution of 1600 x 1200. |
| **Horizontal Pan** | When using the Zoom function, moves the screen image left and right.<br><br>**NOTE:** The Horizontal Pan function is only visible when the Zoom function is adjusted to anything above "0." |
| **Vertical Pan** | When using the Zoom function, moves the screen image up and down.<br><br>**NOTE:** The Vertical Pan function is only visible when the Zoom function is adjusted to anything above "0." |
| **Pixel Clock** | Adjusts the screen image for better stability and clarity by minimizing any vertical bars or stripes visible on the screen background.<br><br>**NOTE:** Pixel Clock adjustment is only available when using the analog VGA connector. |
| **Phase** | Adjusts the focus of the screen image. The Phase setting allows the user to remove any horizontal noise and sharpen the image of characters.<br><br>**NOTE:** Phase adjustment is only available when using the analog VGA connector. |
| **Display Info** | Displays the monitor's video source, resolution, and PIP Status ("Disabled" or "Enabled"). |
| **Display Reset** | Returns adjustments back to factory default settings. |

## Menu Settings Menu

The Menu Settings menu includes the Language, Menu Horizontal Position, Menu Vertical Position, Menu Timer, Transparency, Menu Rotation, Menu Lock, Factory Reset, and DCC/CI functions.




| Menu Settings Menu | Description |
|---|---|
| **Language** | Allows the user to choose the language used in the menus and control screens. |
| **Menu Horizontal Position** | Moves the position of the OSD menu left and right. |
| **Menu Vertical Position** | Moves the position of the OSD menu up and down. |
| **Menu Timer** | Sets the length of time the OSD screen is displayed. For example, with a "20 second" time setting, if a button is not pushed within 20 seconds, the display screen disappears. |
| **Transparency** | Adjusts the level of transparency of the OSD background. |
| **Menu Rotation** | Allows the user to rotate the OSD by 90° counter-clockwise. |
| **Menu Lock** | Allows the user to control access to menu adjustments. When "Locked" is selected, no adjustments are allowed and all buttons are locked except for the Menu button.<br><br>**NOTE:** When the OSD menu is locked, pressing the Menu button will take the user directly to the Menu Settings menu, with the Menu Lock setting pre-selected. Press the minus [ – ] button to select "Unlock" and unlock the OSD menu. |

| Menu Settings Menu | Description |
|---|---|
| **Factory Reset** | Returns adjustments back to factory default settings. |
| **DCC/CI** | Display Data Channel/Command Interface allows the display settings (brightness, color, etc.) to be adjusted via software on the user's PC. Select "Disable" to turn this feature off. |

## PIP Settings Menu

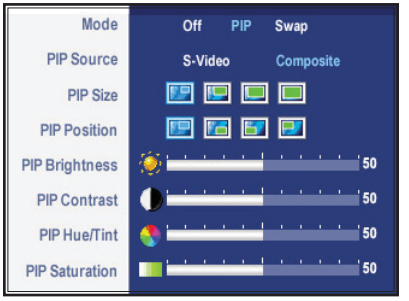
The PIP Settings menu brings up a window displaying image from another input source.

**NOTE:** There are different PIP Settings menus for VGA/DVI-D and Video inputs.

### VGA/DVI-D Input PIP Settings Menu

The PIP Settings menu for VGA/DVI-D inputs includes the Mode, PIP Source, PIP Size, PIP Position, PIP Brightness, PIP Contrast, PIP Hue/Tint, and PIP Saturation functions.

**NOTE:** Only the Mode and PIP Source functions are visible when the Mode function is set to "Off."



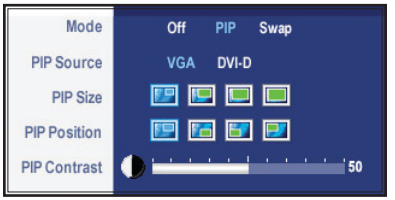

| PIP Settings Menu | Description |
|---|---|
| **Mode** | Turns PIP (Picture-in-Picture) On or Off. When PIP is set to "On" the user can select "Swap" to switch the images shown on the main screen and sub-screen. |
| **PIP Source** | Selects the input source for the PIP. |

| PIP Settings Menu | Description |
|---|---|
| **PIP Size** | Allows the user to select the size of the PIP window. |
| **PIP Position** | Allows the user to select the position of the PIP window. |
| **PIP Brightness** | Adjusts the brightness level of the image in the PIP window. |
| **PIP Contrast** | Adjusts the contrast level of the image in the PIP window. |
| **PIP Hue/Tint** | Shifts the color of the PIP image to green or purple. This is used to adjust for desired flesh tone color. |
| **PIP Saturation** | Adjusts the color brightness of the image in the PIP window. |

### Video Input PIP Settings Menu

The PIP Settings menu for Video inputs includes the Mode, PIP Source, PIP Size, PIP Position, and PIP Contrast functions.

**NOTE:** Only the Mode and PIP Source functions are visible when the Mode function is set to "Off."




| PIP Settings Menu | Description |
|---|---|
| **Mode** | Turns PIP (Picture-in-Picture) On or Off. When PIP is set to "On" the user can select "Swap" to switch the images shown on the main screen and sub-screen. |
| **PIP Source** | Selects the input source for the PIP. |
| **PIP Size** | Allows the user to select the size of the PIP window. |
| **PIP Position** | Allows the user to select the position of the PIP window. |
| **PIP Contrast** | Adjusts the contrast level of the image in the PIP window. |

# Cleaning Instructions

## CAUTION!

**DO NOT USE ABRASIVE MATERIALS, SUCH AS PAPER TOWELS OR DIRTY SHOP RAGS, ON THE DISPLAY AS IT WILL SCRATCH THE PROTECTIVE COATING. ALWAYS USE A SOFT CLOTH, PREFERABLY MADE OF COTTON.**

All displays may be cleaned using any standard glass cleaner as long as there is no abrasive or oily content. Vinegar or ammonia will not hurt the screen.

The anti-reflective coatings on glass window-equipped displays are physically part of the surface of the glass and resist degradation to the Military Specifications.

To minimize over-run of cleaning solution, spray the cloth first and then clean the screen.

# Troubleshooting

## Video Troubleshooting

### IMPORTANT!

**If using a KVM extender, first try to resolve any problems using the solutions listed below. If the problem still exists, try bypassing the KVM extender. If this fixes the problem and allows the monitor to work properly, then the KVM extender is the source of the problem. Please refer to the troubleshooting section of the KVM extender manual or contact Hope Industrial Systems for additional assistance.**

| Symptom | Causes | Solutions |
|---|---|---|
| **No image on the screen and control's Power Indicator light is not lit** | Monitor is not powered on. | • Press the Power button on the monitor and make sure the Power Indicator light is lit green.<br>• Check power connections at the monitor and power source. |
| **No image on the screen and control's Power Indicator light is lit orange** | PC is in Power Saving mode. | Power Saving mode can usually be exited by moving the mouse. |
| **No image on the screen and control's Power Indicator light is lit green** | Monitor source is set for S-Video or Composite. | Press the "Input Source Select" button on the monitor to cycle through available sources. |
| **"Out of Range Signal" message box and no image on the screen** | The signal from the computer exceeds the maximum resolution and/ or refresh rate that the monitor can handle ( > 1600 x 1200 resolution or > 75 Hz refresh rate). | Adjust the computer settings to the monitor's native resolution:<br>1600 x 1200 @ 60 Hz |

| Symptom | Causes | Solutions |
|---|---|---|
| **"No VGA cable" or "No DVI-D cable" message box and no image on the screen** | Video cable is not plugged in correctly. | Check the video cable connection at the monitor, PC, and/or KVM extender. |
| | PC is not powered on. | Ensure PC is powered on. |
| | PC is not sending signal. | Connect the PC to another known working monitor to check the PC source signal. |
| **Incorrectly displayed or partial image on the screen** | Monitor has not been adjusted correctly for the source signal. | • Activate the "Auto Adjust" function in the monitor's OSD menu.<br>• Fine tune the picture by manually adjusting the image. Use the functions in the "Display Settings" menu in the monitor's OSD menu. |
| **Wrong or abnormal colors (white is not white)** | Monitor color settings are incorrectly adjusted. | Activate the "Color Reset" function to return the monitor to the factory default color settings. This function can be found in the "Color Settings" menu in the monitor's OSD menu. |
| | Video cable is not securely connected. | If any colors (red, green, or blue) are missing, check the video cable to make sure it is securely connected. |
| | Video cable is bad. | Check to make sure there are no loose or broken pins in the cable connector. Shorts in the cable could also cause an improper image to display. |
| **Screen image is dim** | Brightness and/or contrast settings are not set properly. | Adjust the settings in the "Brightness & Contrast" menu in the monitor's OSD menu. |
| **A Lock icon appears when attempting to open the OSD menu** | The OSD has been locked to prevent unauthorized changes to display settings. | Press the Menu button and adjust the "Menu Lock" function to unlock the OSD menu. |

# Touch Screen Troubleshooting

Applies to touch screen monitors only. To be sure that you have the most current driver, please check the following Internet address:

http://www.HopeIndustrial.com/Touchscreen_Drivers.htm

| Symptom | Causes | Solutions |
|---|---|---|
| **No response when touching the touch screen** | Touch screen driver has not been installed. | Download and install the latest driver from the Hope Industrial website. |
| | Touch screen cable is not plugged in correctly. | Make sure either the USB or Serial cable is securely connected to the monitor and PC. Do not connect both. |
| | If using a USB connection, does the USB cable length exceed 3 meters? | USB cables have a 3 meter limitation and could cause no touch response if this is exceeded. |
| | If using a Serial connection, is the Serial cable plugged into the correct COM port? | Ensure that the Serial cable is connected to the COM port being used prior to installing the touch screen driver. |
| **The cursor moves but does not follow my finger when touching the touch screen** | Touch screen driver has not been installed. | Download and install the latest driver from the Hope Industrial website. |
| | Touch screen has not been calibrated. | Activate the calibration utility. In Windows systems, these settings may be found at the following location:<br>Control Panel > Elo Touchscreen > "General" Tab<br>• Press the Align button.<br>• Touch all targets as the appear to calibrate the touch screen.<br>• Press the Green Check button when verified. |

# Specifications

| Display | |
|---|---|
| **Type** | Thin-film transistor (TFT) Active Matrix Liquid Crystal |
| **Size** | 20" diagonal |
| **Image Size (W x H)** | 408 mm x 306 mm (16.06" x 12.05") |
| **Native Resolution** | UXGA (1600 x 1200, 4:3 aspect ratio) |
| **Minimum Resolution** | VGA (640 x 480) |
| **Pixel Pitch** | 0.255 mm x 0.255 mm |
| **Number of Colors** | 16.7 million |
| **Brightness (white)** | 300 nits ($cd/m^2$) |
| **Viewing Angle (Hori/Vert)** | 178° / 178° |
| **Contrast Ratio (typical)** | 800:1 |
| **Backlight** | Six CCFTs (Cold Cathode Fluorescent Tube); 45,000 hour brightness half-life |

| Electrical | |
|---|---|
| **Monitor Input** | 100 to 240 VAC, 0.8/0.4 A, 60/50 Hz |
| **Power Consumption** | ~ 55 W |
| **Power Consumption (Standby mode)** | < 2 W |

| Functional | |
|---|---|
| **Control Panel Buttons** | Input Source Select, Menu / Enter, – (Minus / Left), + (Plus / Right), Power |
| **On-Screen Display (OSD) Menus** | Brightness & Contrast, Auto Adjust, Input Source, Color Settings, Image Modes, Display Settings, Menu Settings, PIP Settings |
| **Touch Screen Option** | 5-wire resistive system; emulates a mouse; Serial (RS-232) and USB interface to host computer |

| Video | |
|---|---|
| **Input Connectors** | • HD-15, DVI-D, Composite, S-Video<br>• Compatible inputs using optional adapter (contact Hope Industrial Systems for details):<br>  • HDMI (via HDMI to DVI adapter)<br>  • DisplayPort (via DisplayPort to DVI adapter)<br>  • BNC (via HD-15 to 5-wire BNC adapter) |
| **Input Signal Formats** | • RGB Analog video, 0.7 Volts, 75 Ohms<br>Compatible sync modes: Separate H/V sync, Sync on Green<br>• DVI<br>• NTSC/PAL Composite or S-Video |
| **Horizontal Scan** | 30 – 81 kHz |
| **Vertical Scan** | 56 – 76 Hz |
| **Supported Video Standards** | • 1600 x 1200 @ 60 Hz<br>• 1280 x 1024 @ 60, 75 Hz<br>• 1152 x 864 @ 75 Hz<br>• 1024 x 768 @ 60, 75 Hz<br>• 800 x 600 @ 60, 75 Hz<br>• 720 x 400 @ 70 Hz<br>• 640 x 480 @ 60, 75 Hz |
| **Response Rate (typical)** | 16 ms |

| Environmental | |
|---|---|
| **Operating Temperature** | 0° to 50°C (32° to 122°F) |
| **Storage Temperature** | -20° to 60°C (-4° to 140°F) |
| **Humidity** | 20% to 90% non-condensing |
| **Operating Shock** | 15 g, 6 msec, half-sine |
| **Operating Vibration (sine)** | 1.0g, swept sine 9 – 500 Hz |
| **Transport Vibration (random)** | $0.1g^2$ / Hz, 10 – 200 Hz<br>$0.03g^2$ / Hz, 200 – 2000 Hz |
| **Altitude** | • Operating: up to 10,000 feet<br>• Non-operating: up to 40,000 feet |

| Physical | |
|---|---|
| **Enclosure Type** | Panel mount; rear collar compresses gasket against panel (5/16" maximum panel thickness); held by 12 M5 studs |
| **Panel Rating (with proper installation)** | Built to IP65/IP66 standards<br>• NEMA/UL Type 12/4 (Black Powder-Coated Faceplate)<br>• NEMA/UL Type 12/4/4X (Stainless Steel Faceplate) |
| **Depth** | • Total Product Depth – 69.6 mm (2.74")<br>• Depth Behind Front Edge of Panel – 60.7 mm (2.39")<br>**NOTE:** Design to maximum depth of 74.0 mm (67.0 mm behind front edge of panel) to ensure future compatibility with later revisions and replacement units. |
| **Front Bezel Outside Dimensions (W x H x D)** | 482.6 mm x 398.8 mm x 7.1 mm (19.0" x 15.7" x 0.28") (not including gasket) |
| **Cutout Dimensions (W x H)** | 453.4 mm x 366.8 mm (17.85" x 14.44"); ± 0.5 mm (0.020") |
| **Net Weight** | 22 lbs. |
| **Shipping Weight** | 25 lbs. |

| Compliances and Certifications | |
|---|---|
| **Electrical** | • UL 508A Listed (File No. E318630)<br>• FCC Class A<br>• CAN ICES-3A/NMB-3A<br>• CE |
| **Environmental** | • IEC 60721-3 (Reliability)<br>• WEEE (Registration No. WEE/DJ1859ZX for UK only) |
| **Enclosure** | UL 50E (File No. E318630) |

# Warranty Statement

## Who is Covered?

This warranty covers the purchaser of this product only and is not transferable without our written consent.

## What Does This Warranty Cover and What is the Period of Coverage?

We warrant this product to be free from defects in material and workmanship, subject to the conditions set forth below. The warranty on all industrial display products, KB-R2 and KB-M2 keyboard series, KVM2 extender series, and ENCL-TC and ENCL-PC enclosure series remains in force for a three year period beginning on the date we invoice you. The warranty period on KB-PL1 keyboards is two years, and all other keyboards carry a one year warranty. If Hope Industrial Systems repairs or replaces a product under warranty, its warranty term is not extended.

## What Will We Do to Correct Problems and How Do You Get Service?

We will repair or replace (at our sole option) any part of the unit which proves to be defective. Replacement parts may be new or refurbished and will meet the same specifications of the original parts or unit. For orders sold through our U.S. operations, at our expense we will return the product to any location within the U.S.A. via the shipping method of our choice. Shipping fees for products returned to customers outside the U.S.A. are the responsibility of the customer. For products originally sold through Hope Industrial U.K., return shipping to and from Hope Industrial repair facilities and any EU member country (except Croatia, Cyprus, and Malta) will be provided using a pre-paid UPS shipping label sent via email. In order to receive warranty service you must get prior approval from Hope Industrial Systems. To request warranty service you can telephone us at +1 678 762 9790 or +44 (0) 20 7193 2618 in the United Kingdom or send an email to support@HopeIndustrial.com. If we determine that warranty service is needed we will give you a Return Material Authorization (RMA) number. This RMA number must be conspicuously marked on the outside of the shipping box. Hope Industrial Systems will not accept shipments not accompanied by the RMA number. Except where otherwise noted, you must ship or deliver the product to Hope Industrial Systems Freight prepaid.

## What Does This Warranty Not Cover?

This warranty does not cover equipment which has been damaged due to misuse, abuse, or accident such as: operating the equipment outside of published specifications; exposure to chemicals or gases not covered by specified NEMA standards; displaying fixed images for long periods of time resulting in afterimage effects; improper or unauthorized repair by anyone other than Hope Industrial Systems or a service agency authorized by Hope Industrial Systems to perform such repairs; fire, flood, “acts of God”, or other contingencies beyond the control of Hope Industrial Systems.

Hope Industrial Systems’ responsibility for malfunctions and defects in hardware is limited to repair and replacement as set forth in this warranty statement. Hope Industrial Systems shall not be liable for direct, indirect, incidental, consequential, or other types of damages resulting from the use of any Hope Industrial Systems product other than the liability stated above. These warranties are in lieu of all other warranties express or implied, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. Some states do not allow the exclusion of implied warranties or the limitation or exclusion of liability for incidental or consequential damages so the above exclusions or limitations may not apply to you. You are cautioned that the performance of this product can be affected by many factors, such as system configuration, software, application, and operator control of the system. It is your responsibility to determine suitability of this product for your purpose and application.

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