



HOPE INDUSTRIAL SYSTEMS



15" UNIVERSAL MOUNT INDUSTRIAL MONITOR REVISION F USER MANUAL

Model No. HIS-UM15-___F



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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 a UL Listed Product and must be used with a listed computer.

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:

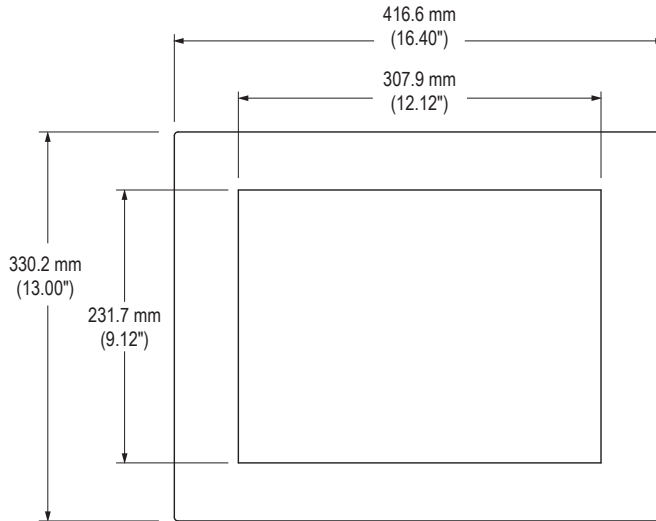
The mark shown to the right is in compliance with the Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE).



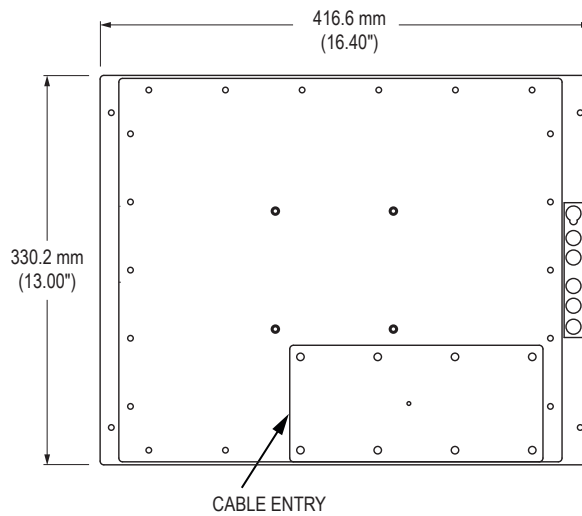
The mark indicates the requirement NOT to dispose of the equipment as unsorted municipal waste, but use the return and collection systems according to local law. Users should contact their supplier and check the terms and conditions of the purchase contract. When purchased directly from Hope Industrial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

Mechanical Drawings

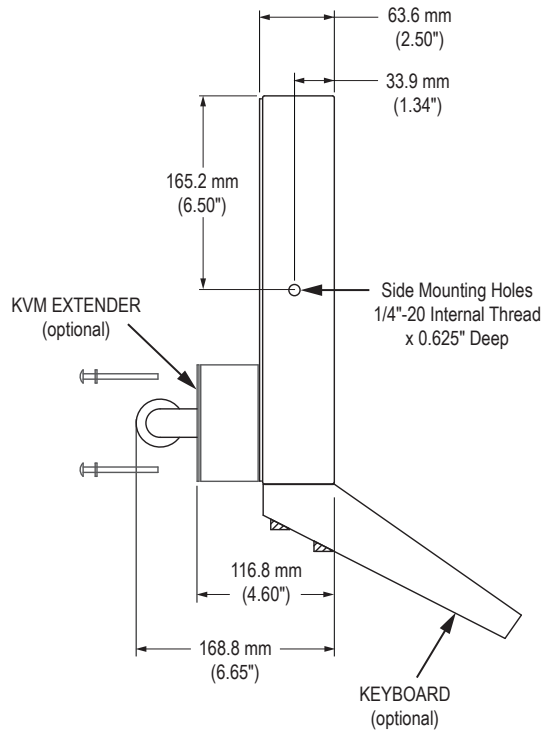
Front View



Rear View



Side View



Installation Instructions

Step 1: Prepare for Installation



IMPORTANT!

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

1. Ensure that sufficient power is available and a readily accessible disconnect device is incorporated in the building installation wiring.
2. Ensure that sufficient space is available to allow for proper air flow around the enclosure.
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-UM15 is 50°C (122°F).**
 - ▶ **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-UM15 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

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

Video Connection

The HIS-UM15 supports analog video. 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 video output port on the host computer.

Power Connection

The HIS-UM15 is powered by 100 to 240 VAC, 0.5/0.25 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 Touchscreen

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

All touchscreen 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.HopelIndustrial.com/Touchscreen_Drivers.htm



IMPORTANT!

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

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-ROM, 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 **readme.htm** file. Select the appropriate driver.
3. Click to "Run" the software when prompted. Follow on-screen instructions to download and execute the touchscreen driver installation.

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-ROM, 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 **readme.htm** file. Select the appropriate driver.
2. Click to "Run" the software when prompted. Follow on-screen instructions to download and execute the touchscreen 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. Route one end of the USB cable through the retention bracket and connect it to the USB Type B input port on the rear of the monitor. Connect the other end to the USB port on the host computer.

Calibrate the Touchscreen

Once the driver has finished installing, you are ready to calibrate the touchscreen. Open the touchscreen's Control Panel, located in the host computer's Control Panel.

NOTE: Some touchscreen drivers have an "Enhanced Calibration Mode" option. If applicable to your particular driver, this setting may be found in the touchscreen's Control Panel under the "Mode" tab.

Step 3: Install the Monitor

Once you have completed the full bench-test configuration and confirmed that all components are working properly, you are ready for final installation and mounting of the monitor.



WARNING!

HIS will not assume liability for damage to internal electronics due to improper installation. Contact HIS if you need additional assistance.

Install Cable Exit Cover Plate

Installation instructions vary slightly depending on the Cable Exit Cover Plate you ordered. Complete installation instructions are shipped with each Cover Plate configuration and may also be found on our website at the following addresses:

Compression Gland (CP-GL Series):

<http://www.HopeIndustrial.com/Installations/99033.pdf>

Compression Gland (CP-RG1 Series):

<http://www.HopeIndustrial.com/Installations/99071.pdf>

Conduit Cable Exit (CP-CON Series):

<http://www.HopeIndustrial.com/Installations/99075.pdf>

PermaGland (CP-PG Series):

<http://www.HopeIndustrial.com/Installations/99076.pdf>

Pilot Hole Cover Plate (CP-BLNK Series):

<http://www.HopeIndustrial.com/Installations/99077.pdf>

Mount the Monitor

HIS offers a variety of mounting options for your Universal Mount monitor. Individual installation instructions are shipped with the following products and may also be found on our website at the addresses listed below.

Heavy Industrial Yoke Mounts

The standard yoke may be used alone, with our benchtop mounting kit for through-surface cable routing, or with our pedestal mount for free-standing applications. Complete installation instructions are shipped with the following products and may also be found on our website at the following addresses:



Yoke Mounting Hardware:

<http://www.HopeIndustrial.com/Installations/99025.pdf>

YB-N12-KIT (for YB1517-BLK-N12 and YB19-BLK-N12):

<http://www.HopeIndustrial.com/Installations/99026.pdf>

Yoke Benchtop Kit (for YB Series):

<http://www.HopeIndustrial.com/Installations/99027.pdf>

Heavy Industrial Pedestal Mounts

Our Yoke and Pedestal mount allows full range of pan and tilt motion, while our Fixed Pedestal mount provides a sturdy solution when a non-adjustable mount is acceptable. Complete installation instructions are shipped with the following products and may also be found on our website at the following addresses:



Fixed Pedestal:

<http://www.HopeIndustrial.com/Installations/99041.pdf>

Yoke Mounting Hardware:

<http://www.HopeIndustrial.com/Installations/99025.pdf>

YB-N12-KIT (for YB1517-BLK-N12 and YB19-BLK-N12):

<http://www.HopeIndustrial.com/Installations/99026.pdf>

Yoke Benchtop Kit (for YB Series):

<http://www.HopeIndustrial.com/Installations/99027.pdf>

Heavy Industrial Arm Mounts

Our wall arm mounting options range from solid wall yoke to fully-articulating arms. Complete installation instructions are shipped with the following products and may also be found on our website at the following addresses:

Wall Mount Arms (for YA __ -15 and YA __ -24 Series):

<http://www.HopeIndustrial.com/Installations/99090.pdf>

Wall Yoke (for YW __ -07 Series):

<http://www.HopeIndustrial.com/Installations/99091.pdf>



VESA Radial Arm

The VESA Radial Arm mount is designed to suspend our Universal Mount monitors above a working area.



VESA Wall Mount Bracket

The VESA Wall Mount Bracket allows simple, effective mounting of our Universal Mount monitors to any vertical surface.



VESA Benchttop Stand

The VESA Benchttop Stand allows easy, stable positioning of our Universal Mount monitors on any flat surface.



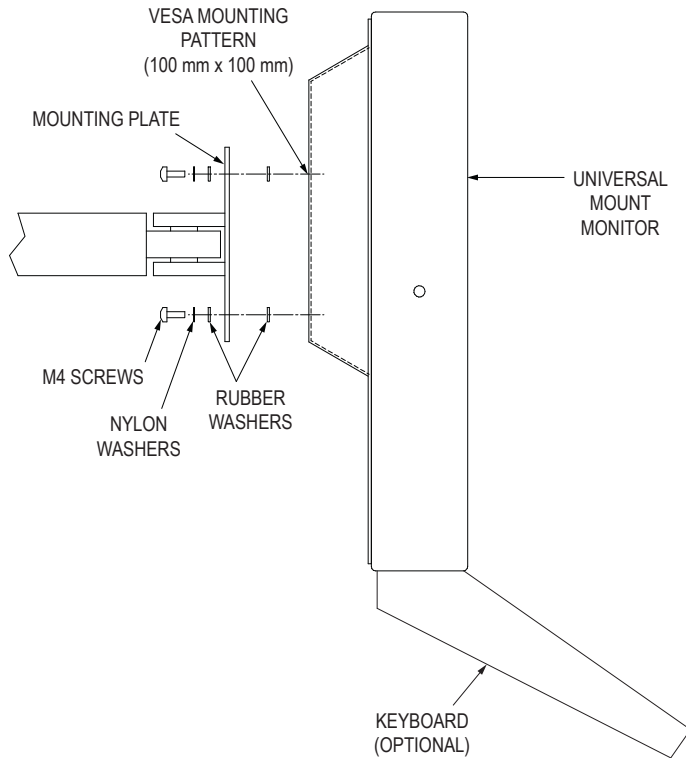
All HIS Universal Mount monitors come standard with a 100 mm square VESA mounting pattern with M4 threads. Below is the VESA mounting diagram for HIS Universal Mount monitors. Detailed installation instructions for specific VESA mounting options are shipped with the product and may also be found on our website at the following address:

<http://www.HopeIndustrial.com/Installations/99034.pdf>



IMPORTANT!

If using VESA mounting screws not supplied by HIS, ensure they do not protrude into the enclosure more than 12.7 mm (0.5").



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. 1024 x 768) 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 1024 x 768 @ 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:

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

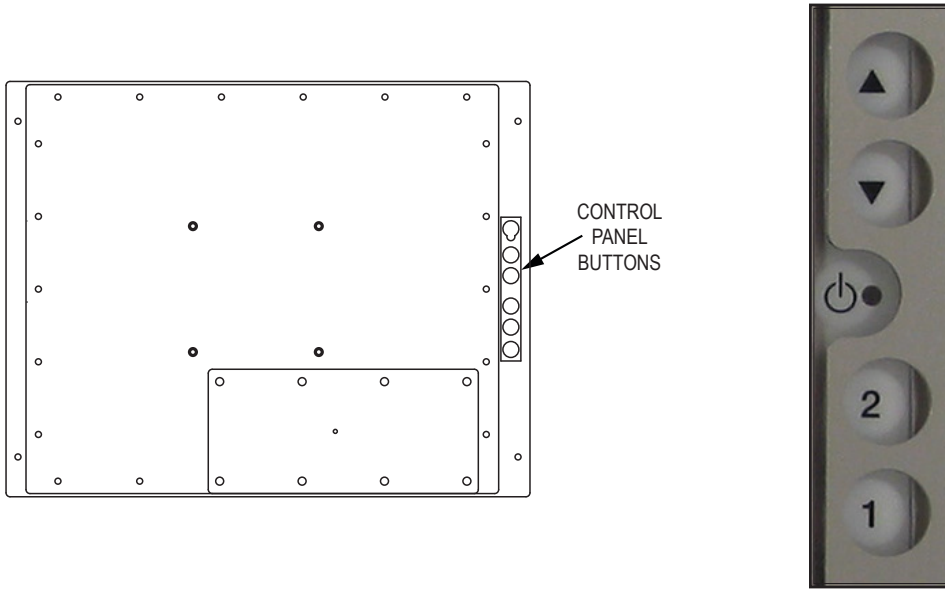


WARNING!






Do not set the graphics card in your computer to exceed the maximum refresh rate of 85 Hz; doing so may result in permanent damage to your display.

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 button [1].
NOTE: All OSD menus and adjustments screens disappear automatically after 15 seconds. This is adjustable through the OSD timeout setting in the Setup menu.
2. To select a control to adjust, press the up [▲] or down [▼] button to scroll through the menu.
3. Press button [2] to open the menu for a selected control.
4. To adjust the control, press the up [▲] or down [▼] button.
5. To save the adjustments and return to the main OSD menu, press button [1] once. To exit the OSD menu, press button [1] twice.

| Button | Control | Functions |
|---|-------------------------------|---|
|  | Up / Contrast Adjust | When the OSD menu IS NOT displayed: <ul style="list-style-type: none"> • Shortcut to Contrast Adjust. |
| | | When the OSD menu IS displayed: <ul style="list-style-type: none"> • Scrolls up and adjusts items in the menu up. |
|  | Down / Contrast Adjust | When the OSD menu IS NOT displayed: <ul style="list-style-type: none"> • Shortcut to Contrast Adjust. |
| | | When the OSD menu IS displayed: <ul style="list-style-type: none"> • Scrolls down and adjusts items in the menu down. |
|  | Power | <ul style="list-style-type: none"> • Turns the monitor on and off. • The Power Indicator light glows green during normal operation and orange when the monitor is in Power Saving mode. |
|  | Enter | <ul style="list-style-type: none"> • Displays the control screen for the highlighted control. • Toggles between two controls on some screens. |
|  | Menu | <ul style="list-style-type: none"> • Opens the OSD menu. • Exits the OSD menu and saves adjustments. |

OSD and Power Lock Settings

- ▶ **OSD Lock:** Press and hold [1] and the up [▲] button for 10 seconds. If any buttons are pressed the message *OSD Locked* will display for 5 seconds.
- ▶ **OSD Unlock:** Press and hold [1] and the up [▲] button again for 10 seconds.
- ▶ **Power Button Lock:** Press and hold [1] and the down [▼] button for 10 seconds. If the power button is pressed, the message *Power Button Locked* will display for 5 seconds. With or without this setting, after a power failure, your monitor's power will automatically turn ON when power is restored.
- ▶ **Power Button Unlock:** Press and hold [1] and the down [▼] button again for 10 seconds.

On-Screen Display (OSD) Menus

To open the OSD menu, press button [1] once. The following screen will appear:



| Main Menu | Description |
|------------------------------|---|
| Auto Image Adjust | Automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion. |
| Contrast / Brightness | Includes the Contrast and Brightness functions. |
| Color Adjust | Provides several color adjustment modes. |
| Information | Displays the timing mode (video signal input). |
| Manual Image Adjust | Includes the H./V. Position, H. Size, Fine Tune, and Sharpness functions. |
| Setup Menu | Includes the Language Select, Resolution Notice, OSD Position, OSD Timeout, and OSD Background functions. |
| Memory Recall | Returns adjustments back to factory settings. |

Auto Image Adjust Menu



The Auto Image Adjust menu automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion.

NOTE: Auto Image Adjust works with most common video cards. If this function does not work on your display, lower the video refresh rate to 60 Hz and set the resolution to its pre-set value.

Contrast / Brightness Menu



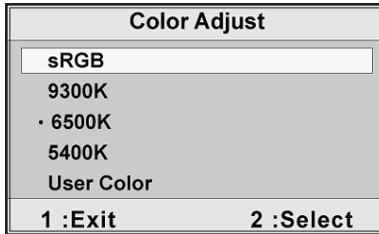
The Contrast/Brightness menu includes the Contrast and Brightness functions.

| Contrast / Brightness Menu | Description |
|----------------------------|---|
| Contrast | <ul style="list-style-type: none"> Adjusts the difference between the image background (black level) and the foreground (white level). This feature may also be accessed by pressing the up [▲] or down [▼] button outside of the OSD menu. |
| Brightness | Adjusts the background black level of the screen image. |

Color Adjust Menu



The Color Adjust menu provides several color adjustment modes, including preset color temperatures and a User Color mode which allows independent adjustment of red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).



| Color Adjust Menu | Description |
|-------------------|--|
| sRGB | This is quickly becoming the industry standard for color management, with support being included in many of the latest applications. Enabling this setting allows the LCD to more accurately display colors the way they were originally intended. NOTE: Enabling the sRGB setting will cause the Contrast and Brightness adjustments to be disabled. |
| 9300K | Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting). |
| 6500K | Adds red to the screen image for warmer white and richer red. |
| 5400K | Adds green to the screen image for a darker color. |
| User Color | Individual adjustments for red (R), green (G), and blue (B). <ol style="list-style-type: none"> To select color (R, G, or B) press button [2]. To adjust selected color, press the up [▲] or down [▼] button. NOTE: If you select RECALL from the OSD Main Menu when the product is set to a Preset Timing Mode, colors return to the 6500K factory preset. |

Information Menu



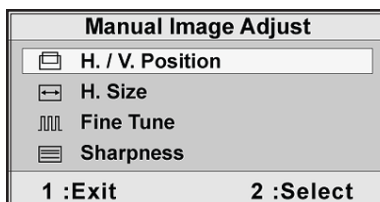
The Information menu displays the timing mode (video signal input) coming from the graphics card in the computer. See your graphics card's user guide for instructions on changing the resolution and refresh rate (vertical frequency).

NOTE: VESA 1024 x 768 @ 60 Hz (recommended) means that the resolution is 1024 x 768 and the refresh rate is 60 Hz.

Manual Image Adjust Menu



The Manual Image Adjust menu includes the H./V. Position, H. Size, Fine Tune, and Sharpness functions.

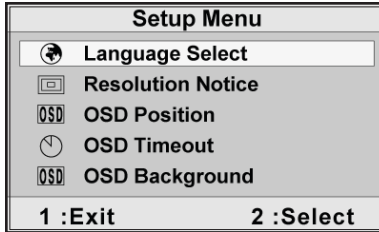


| Manual Image Adjust Menu | Description |
|--|---|
| H./V. Position (Horizontal / Vertical Position) | <p>Moves the screen image left or right and up or down.</p> |
| H. Size (Horizontal Size) | Adjusts the width of the screen image. |
| Fine Tune | <p>Sharpens the focus by aligning text and/or graphics with pixel boundaries.</p> <p>NOTE: Try the Auto Image Adjust function first.</p> |
| Sharpness | Adjusts the clarity and focus of the screen image. |

Setup Menu



The Setup menu includes the Language Select, Resolution Notice, OSD Position, OSD Timeout, and OSD Background functions.



| Setup Menu | Description |
|--------------------------|--|
| Language Select | Allows the user to choose the language used in the menus and control screens. |
| Resolution Notice | Advises the optimal resolution to use and displays the Resolution Notice menu shown below: <div data-bbox="469 773 753 941" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Resolution Notice</p> <p style="text-align: center;">For the best quality, change the resolution to 1024 x 768</p> <p style="text-align: center;">Press "1" to clear message Press "2" to disable message</p> <p style="text-align: center;">1 :Exit 2 :Select</p> </div> |
| OSD Position | Allows the user to move the OSD menus and control screens. |
| OSD Timeout | Sets the length of time the OSD screen is displayed. For example, with a "15 second" time setting, if a control is not pushed within 15 seconds, the display screen disappears. |
| OSD Background | Allows the user to turn the OSD background On or Off. |

Memory Recall Menu



The Memory Recall menu returns adjustments back to factory settings.

NOTE: This control does not affect changes made with the User Color control, Language Select, or Power Lock setting.

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 HIS 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. | <ul style="list-style-type: none"> Press the Power button on the monitor and make sure the Power Indicator light is lit green. Check power connections at the monitor and power source. |
| "No Signal" 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 in Power Saving mode. | Power Saving mode can usually be exited by moving the mouse or pressing a key on the keyboard. |
| | 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. |

| Symptom | Causes | Solutions |
|---|--|---|
| No image on the screen and control's Power Indicator light is lit orange | Video cable is not plugged in correctly. | Check the video cable connection at the monitor, PC, and/or KVM extender. |
| | PC is in Power Saving mode. | Power Saving mode can usually be exited by moving the mouse or pressing a key on the keyboard. |
| | 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. |
| "Out of Range" 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 (> 1024 x 768 resolution or > 75 Hz refresh rate). | Adjust the computer settings to the monitor's native resolution: 1024 x 768 @ 60 Hz |
| Incorrectly displayed or partial image on the screen | Monitor has not been adjusted correctly for the source signal. | <ul style="list-style-type: none"> • Activate the "Auto Image Adjust" function in the OSD menu. • Fine tune the picture by manually adjusting the image. In the OSD menu, these functions can be found in the "Manual Image Adjust" menu. |

| Symptom | Causes | Solutions |
|---|---|--|
| <p>Wrong or abnormal colors (white is not white)</p> | <p>Monitor color settings are incorrectly adjusted.</p> | <ul style="list-style-type: none"> Adjust the colors of the display using the "Color Adjust" function in the OSD. Reset the monitor to the factory default settings by activating the "Memory Recall" function in the OSD. |
| | <p>Video cable is not securely connected.</p> | <p>If any colors (red, green, or blue) are missing, check the video cable to make sure it is securely connected.</p> |
| | <p>Video cable is bad.</p> | <p>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.</p> |
| <p>Screen image is dim</p> | <p>Brightness and/or contrast settings are not set properly.</p> | <p>Adjust the monitor's brightness and contrast settings in the OSD's "Contrast/Brightness" menu.</p> |
| <p>The message "OSD Locked" appears on the screen</p> | <p>The OSD has been locked to prevent unauthorized changes to display settings.</p> | <p>Press and hold [1] and the up [▲] button for 10 seconds.</p> |
| <p>The message "Power Button Locked" appears on the screen</p> | <p>The Power button has been locked to prevent unauthorized shut down of the monitor.</p> | <p>Press and hold [1] and the down [▼] button for 10 seconds.</p> |

Touchscreen Troubleshooting

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

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

| Symptom | Causes | Solutions |
|---|--|---|
| No response when touching the touchscreen | Touchscreen driver has not been installed. | Download and install the latest driver from the HIS website. |
| | Touchscreen 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 touchscreen driver. |
| The cursor moves but does not follow my finger when touching the touchscreen | Touchscreen driver has not been installed. | Download and install the latest driver from the HIS website. |
| | Touchscreen has not been calibrated. | <p>Activate the calibration utility. In Windows systems, these settings may be found at the following location:</p> <p>Control Panel > Elo Touchscreen > "General" Tab</p> <ul style="list-style-type: none"> • Press the Align button. • Touch all targets as they appear to calibrate the touchscreen. • Press the Green Check button when verified. |

Specifications

| Display | |
|---------------------------|---|
| Type | Thin-film transistor (TFT) Active Matrix Liquid Crystal |
| Size | 15" diagonal |
| Image Size (W x H) | 304 mm x 228 mm (11.97" x 8.98") |
| Native Resolution | XGA (1024 x 768, 4:3 aspect ratio) |
| Minimum Resolution | VGA (640 x 480) |
| Pixel Pitch | 0.297 mm x 0.297 mm |
| Number of Colors | 16.8 million |
| Brightness (white) | 250 nits (cd/m ²) |
| Viewing Angle (Hori/Vert) | 160° / 115° |
| Contrast Ratio (typical) | 500:1 |
| Backlight | Two CCFTs (Cold Cathode Fluorescent Tube); 50,000 hours to half brightness; replaceable |

| Video | |
|---------------------------|---|
| Input Connectors | HD-15 NOTE: Optional BNC input using HD-15 to 5-wire BNC adapter; see "Input Signal Formats" for a list of compatible video signals. |
| Input Signal Formats | RGB Analog video, 0.7/1.0 Vp-p, 75 Ohms Compatible sync modes: Separate H/V sync NOTE: NTSC/PAL composite input available (call for details) |
| Horizontal Scan | 30 – 82 kHz |
| Vertical Scan | 50 – 85 Hz |
| Supported Video Standards | <ul style="list-style-type: none"> • 1024 x 768 @ 60, 70, 72, 75 Hz • 800 x 600 @ 56, 60, 72, 75 Hz • 640 x 480 @ 60, 75 Hz • 720 x 400 @ 70 Hz |
| Response Rate (typical) | 12 ms |

| Electrical | |
|--------------------------|--------------------------------------|
| Monitor Input | 100 to 240 VAC, 0.5/0.25 A, 60/50 Hz |
| Power Consumption | ~ 23 W |
| Power Management | DPMS/energy star, < 1 W |

| Environmental | |
|-------------------------------------|--|
| Temperature | 0° to 50°C (32° to 122°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 0.03g ² / Hz, 200 – 2000 Hz |
| Altitude | <ul style="list-style-type: none"> • Operating: up to 10,000 feet • Non-operating: up to 40,000 feet |

| Functional | |
|--------------------------------------|--|
| Control Panel Buttons | Up, Down, Power, 2 (Enter), 1 (Menu) |
| On-Screen Display (OSD) Menus | Auto Image Adjust, Contrast / Brightness, Color Adjust, Information, Manual Image Adjust, Setup, Memory Recall |
| Touchscreen Option | 5-wire resistive system; emulates a mouse; Serial (RS-232) and USB interface to host computer |

| Physical | |
|---|--|
| Enclosure Type | Self-contained enclosure |
| Enclosure Rating | Built to IP22 standards <ul style="list-style-type: none"> • NEMA/UL Type 2 (Black Powder-Coated or Stainless Steel) Built to IP65/IP66 standards <ul style="list-style-type: none"> • NEMA/UL Type 12/4 (Black Powder-Coated Steel) • NEMA/UL Type 12/4/4X (Stainless Steel) |
| Enclosure Dimensions (W x H x D) | 416.6 mm x 330.2 mm x 71.2 mm (16.4" x 13.0" x 2.8") |
| Net Weight | <ul style="list-style-type: none"> • Black Powder-Coated Steel model – 13 lbs. • Stainless Steel model – 16 lbs. |
| Shipping Weight | <ul style="list-style-type: none"> • Black Powder-Coated Steel model – 16 lbs. • Stainless Steel model – 19 lbs. |

| Compliances and Certifications | |
|---------------------------------------|--|
| Electrical | <ul style="list-style-type: none"> • UL 60950-1 / cUL Listed Product (File No. E212889) • FCC Class A • CE |
| Environmental | <ul style="list-style-type: none"> • RoHS (Hazardous Substances) • IEC 60721-3 (Reliability) • WEEE (Registration No. WEE/DJ1859ZX for UK only) |
| Enclosure | UL50E (File No. E212889) |

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-EXT and KB-M2-EXT series keyboards, and ENCL-TC1 series enclosures 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 HIS 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. We will return the product to you by the shipping method we choose in the U.S.A. at our expense. You must pay for shipments to locations outside of the U.S.A. In order to receive warranty service you must get prior approval from HIS. To request warranty service, you can telephone us at 877-762-9790 (1-678-762-9790 outside the U.S.) or send an e-mail to support@HopelIndustrial.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. HIS will not accept shipments not accompanied by an RMA number. You must ship or deliver the product to HIS 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 HIS or a service agency authorized by HIS to perform such repairs; fire, flood, "acts of God", or other contingencies beyond the control of HIS.

HIS' responsibility for malfunctions and defects in hardware is limited to repair and replacement as set forth in this warranty statement. HIS shall not be liable for direct, indirect, incidental, consequential, or other types of damages resulting from the use of any HIS 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.

Hope Industrial Systems, Inc.

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