**Hope Industrial Systems, Inc.**

# *User Manual*

## 12" Panel Mount Industrial Monitor
Revision C

Model Numbers: HIS-ML12- _ _ _ C

# Table of Contents

# Safety and Regulatory Information

## Warning

**To prevent fire or shock hazard, do not expose the unit 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 no 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.**

**This product is a UL Recognized Component 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.

# Control Panel Buttons and Indicators

| Control Panel Button | Description |
|---|---|
| Power On/Off ⏻ | Press to turn monitor power on and off. |
| Menu ◇ | Pressing this button the first time brings up the OSD (On Screen Display) menu.  Once inside the OSD menu, pressing this button again selects the highlighted function. |
| Select + ▷ | Use these buttons to navigate within the OSD and to increase/decrease function values. |
| Select - ◁ | |

## Power Indicator Light Status

- LED lit green – power is ON.
- LED not lit – power is OFF.
- LED lit yellow – monitor is in power saving mode.

***Note**:  This unit has "Energy Star" capability – you can leave device power in the on state when the computer is powered off.

# OSD Functions

| Menu | Description |
|---|---|
| **Brightness** | 101 scales of brightness are available to choose from (0 to 100) |
| **Contrast** | 256 scales of contrast are available (0 to 255) |
| **H. Position** | For adjustment of the display's horizontal position. |
| **V. Position** | For adjustment of the display's vertical position. |
| **Phase** | 32 scales are available to adjust the focus and clarity of the display (0 to 31). |
| **Clock** | This function provides a frequency-tracking feature that allows the user to have better stability and clarity. Increasing the Clock value can be up to 64 settings. The number of decreasing Clock (minus) is dependent on the video signal timing. |
| **Auto Adjustment** | This function will adjust the display size automatically to fit the full screen. |
| **OSD H. Position** | For moving the OSD menu window horizontally. |
| **OSD V. Position** | For moving the OSD menu window vertically. |
| **Graphics Text** | Provides ability for the operator to choose a display that allows maximum graphics text quality. The resolution selection can either be 640x400 or 720x400. Please refer to Standard Timing Table for different timing modes. |
| **Recall** | Will force all adjusted parameters to factory-preset values. |
| **Language** | Five OSD language options are available: English, German, French, Spanish and Italian. |
| **Color Temp.** | Push the (+ -) buttons to select different color temperatures.<br><br>9300 – CIE coordinated Color Temperature of 9300ºK<br>6300 – CIE coordinated Color Temperature of 6500ºK |

| | USER – Three colors (Red, Green, Blue) can be adjusted from the OSD menu. |
|---|---|
| **Save + Exit** | Saves the values of this setting and exits the OSD menu function. |
| **Brightness** | 101 scales of brightness are available to choose from (0 to 100) |
| **Contrast** | 256 scales of contrast are available (0 to 255) |
| **H. Position** | For adjustment of the display's horizontal position. |

# Installation Instructions

## Preparing 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 <u>sufficient space</u> is available to allow for <u>proper air flow</u> into and out of the unit.

3. Ensure that the air temperature around the unit (top and bottom) <u>will not exceed the rated specifications of the unit</u>.

   - **The maximum rated temperature of the HIS-ML12 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 when the air is not circulating.**

   - **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 <u>does not exceed the rated specifications for the unit.</u>

   - The maximum rated humidity for the HIS-ML12 is 90% non-condensing

## Installation into Panel

1. Refer to the drawing below.

2. Locate position in panel for mounting of the monitor. Ensure that there is adequate space begin the panel. Allow extra space (0.5 in. behind and on each side) for air ventilation.

3. Cut a rectangular hole in the panel. Clean and deburr.
   Dimensions:  12.12" (308mm) W x 10.35" (263mm) H ; +/- .020"

4. Separate the rear collar from the unit by removing the 8 nuts.

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

6. Tighten all 8 nuts to a torque of 24 inch-pounds to assure a water-tight seal between the poron bezel gasket on the monitor and equipment panel. *HIS will not assume liability for damage to internal electronics due to improper installation.*
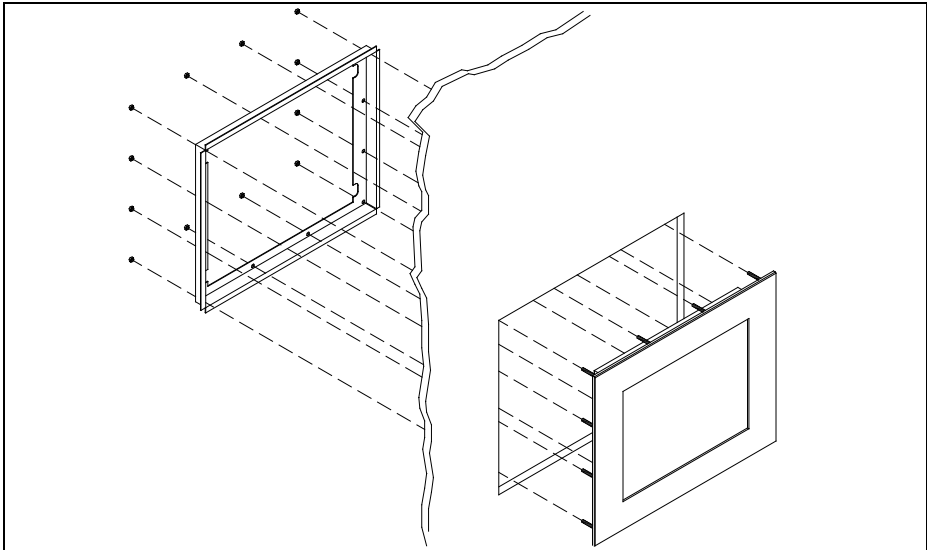
# Touchscreen Driver Installation

The enclosed CD-ROM contains documentation and drivers for all major operating systems. To be sure you have the most current information, check the following Internet addresses:

http://HISmonitors.com/Touchscreen_Drivers.htm

# Cleaning

**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.**

## Resistive Touchscreen model

Any standard glass cleaner can be used to clean the touchscreen. Always spray the glass cleaner on the cloth or towel and then clean the touchscreen. Glass cleaner sprayed directly on the monitor could possibly leak inside a non-sealed unit and cause damage.

Vinegar or ammonia will not hurt the touchscreen. Again, spray the cloth and then clean the touchscreen.

## Tempered Anti-Reflective Glass Window

Use any standard glass cleaner as long as there is no abrasive or oily content. The anti-reflective coatings are physically part of the surface of the glass and resist degradation to the Military Specifications.

# Troubleshooting

**Blank Screen**     After installing the power adapter and connecting I/O cable to a PC, the monitor displays a blank screen.

- Press the power button and check to see if the power LED is lit.
- If the LED turns green, make sure the PC is powered on. Make sure all cables are connected.
- If the LED turns orange, check to see if the PC is in the power saving mode by pressing any keys on the keyboard.

**Rolling Screen**

- Change PC display resolution to 800x600 at 60hz.
- Unplug the power adapter to monitor, then plug it in again.
- Press monitor power button again.
- Reset the monitor to the original factory setting.
- Activate the "Auto Adjust" function in the OSD menu.

**Unstable Screen**

- Activate the "Auto Adjust" function in the OSD menu.
- Make sure the PC display resolution is not set greater than 800x600 at 75hz.
- Make sure the PC display resolution matches one of the factory preset timings in this manual.
- Change the PC display resolution to 800x600 at 60hz.
- Reset the monitor to the factory setting.

**Screen is not perfect**

- Activate the "Auto Adjust" function in the OSD menu.
- Make sure the PC display resolution matches one the factory preset timings shown in this manual.
- Recall factory setting. Refer to panel controls and OSD functions in this manual.
- Fine tune the picture by performing the following adjustments in this order – pitch, phase, and position. Refer to OSD functions in this manual.

# Drawings

## Front and Side Views

338.1 mm
( 13.31 " )

295.7 mm
( 11.64 " )

28.6 mm
( 1.12 " )
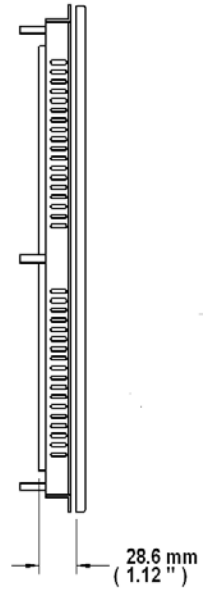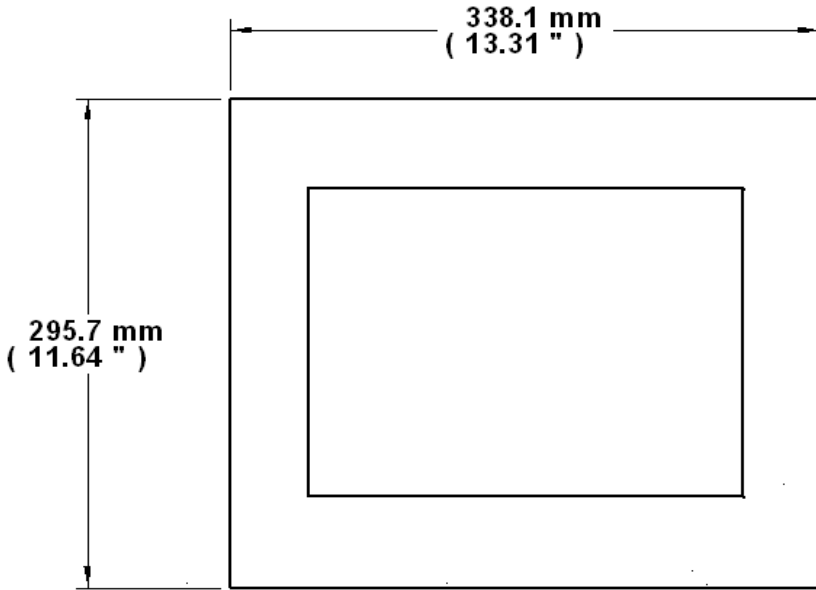
**Rear View (Showing Cutout Dimensions)**

308 mm (12.12")

263 mm (10.35")

TOUCHSCREEN
(RS232 and USB)

POWER IN

VIDEO

REAR CONTROLS

# Specifications

## Display

| Type | Thin-film transistor (TFT) Active Matrix Liquid Crystal |
|---|---|
| Size | 12.1" diagonal |
| Image size | 9.7" (246mm) W x 7.3" (184.5mm) H |
| Native resolution | SVGA (800 x 600) |
| Plug and Play | DDC1/2B compatible |
| Minimum resolution | 640 x 350 |
| Pixel pitch | 0.3075mm x 0.3075mm |
| Number of colors | 262,144 |
| Viewing Angle (Hori/Vert) | 130° / 100° |
| Brightness (white) | 200 nits (cd/m$^2$) max |
| Contrast ratio | 500:1 (typical) |
| Back light | Two CCFTs (Cold Cathode Fluorescent Tube); 50,000 hours, half-life; replaceable |
| Screen protector (when not shipped with touch-screen) | Tempered glass to ANSI-Z97.1 SPEC; AR coated on both sides; 98% Transmission of light; 99% Reduction of glare; 53% UV blocking; 30% NIR Blocking; proprietary hydrophobic coating on outside reduces fingerprint smears, repels liquid spills and makes glass easy to clean. |

## Video

| Input connector | HD-15 (optional BNC input) |
|---|---|
| Input signal format | RGB Analog video 0 – 0.7V p-p – sep V and H, combined sync, sync on green |
| Horizontal scan | 31kHz – 38kHz |
| Supported Video Standards | Std VGA – 640x480 @ 60Hz<br>SVGA – 800x600 @ 60Hz |
| Vertical scan | 60Hz – 75 Hz |
| Response rate (typical) | 10ms |

## Electrical

| | |
|---|---|
| Power Adapter Input | 100VAC – 240VAC, 50-60 Hz |
| Power adapter output | 12VDC @ 2.5 amps |
| Monitor input | 12VDC |
| Power consumption | Approximately 20 watts |
| Power management | DPMS/energy star, < 5W |

## Environmental

| | |
|---|---|
| Temperature | 0-50°C (consult factory for installation instructions when continuous 24/7 operation exceeds 40°C) |
| Humidity | 20% to 90% non-condensing |
| Shock | 30g (1/2 sine, 11 msec.) |
| Vibration | 0.006 inch p-p 15-57Hz, 1.0g 57-640Hz sine |
| Altitude | Operating: up to 10,000 feet; Non-operating: up to 40,000 feet |

## Functional

| | |
|---|---|
| Panel controls (rear access) | DC Power Switch, DC Power-On Indicator, Menu Button, Plus (+) and Minus (-) Buttons |
| OSD (On Screen Display) controls | Brightness, Contrast, H. Position, V. Position, Phase, Clock, Auto Adjustment, OSD H. Position, OSD V. Position, Graphics Text, Recall, Language, Color Temp., Save + Exit, Brightness, Contrast, H. Position |
| Touch screen option | Elo Touch systems AccuTouch 5-wire resistive system; emulates a mouse; RS-232 or USB interface to host computer |

## Enclosure

| | |
|---|---|
| Type | Panel mount; rear collar compresses gasket against panel, held by 8 M5 studs |
| Panel rating | NEMA 12/4/4X (with proper installation) – built to IP65 standards |

## Physical

| Depth | 1.6" (2.5" at connectors) behind panel maximum |
|---|---|
| Bezel | Stainless Steel |
| Front bezel outside dimensions | 13.3" W x 11.6" H x 0.236" thick (not including gasket) |
| Cutout dimensions | 12.12" (308mm) W x 10.35" (263mm) H ; +/- .020" |
| Net weight | 8 lbs. |
| Shipping weight | 13 lbs. |

## Compliance

| Electrical | UL 60950 3rd Edition, cUL recognized component; FCC Class A |
|---|---|
| Environmental | RoHS |

## VGA Pin assignment

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Red | 9 | No pin |
| 2 | Green | 10 | Ground |
| 3 | Blue | 11 | Ground |
| 4 | Ground | 12 | SDA |
| 5 | Ground | 13 | H. sync |
| 6 | Ground | 14 | V. sync |
| 7 | Ground | 15 | SCL |
| 8 | Ground | | |

# Factory Preset Timing

| Resolution | Horizontal Frequency (KHz) | Vertical Frequency (Hz) | Pixel Clock (MHz) | Mode |
|---|---|---|---|---|
| 640 x 350 | 31.469 | 70.087 | 25.175 | VGA-350 |
| 640 x 400 | 31.469 | 70.087 | 25.175 | VGA-400-GRAPH |
| 640 x 480 | 31.469 | 59.940 | 25.175 | VGA-480 |
| 640 x 480 | 37.861 | 72.809 | 31.500 | VESA-480-72Hz |
| 640 x 480 | 37.500 | 75.000 | 31.500 | VESA-480-75Hz |
| 720 x 400 | 31.469 | 70.087 | 28.322 | VESA-400-TEXT |
| 800 x 600 | 35.156 | 56.250 | 36.000 | SVGA |
| **\* 800 x 600** | **37.879** | **60.317** | **40.000** | **VESA-600-60Hz** |
| **\* 800 x 600** | **48.077** | **72.188** | **50.000** | **VESA-600-72Hz** |
| **\* 800 x 600** | **46.875** | **75.000** | **49.500** | **VESA-600-75Hz** |

\*   Factory recommended timings for best picture quality

# 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.  This warranty remains in force for a three-year period beginning on the date we invoice you for the product.  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 678-762-9790 or send an email to service@HISmonitors.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 the 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; 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.

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