



USER MANUAL

DIGITAL SIGNAGE TOUCH MONITOR

M1-490DS-A1

M1-550DS-A1

M1-650DS-A1



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About This Document

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Compliance Information

For FCC (USA)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For IC (Canada)

CAN ICES-003(B)/NMB-003(B)

For CE (EU)

The device complies with the EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU

Disposal Information

Waste Electrical and Electronic Equipment



This symbol on the product indicates that, under the European Directive 2012/19/EU governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. For more information about recycling of this product, please contact your local city office or your municipal waste disposal service.

Renseignements relatifs à la conformité

Pour la FCC (États-Unis)

Ce matériel a fait l'objet d'essais qui ont déterminé qu'il respectait les limites d'un appareil de classe A selon la partie 15 des règlements de la FCC. Ces limites sont établies pour assurer une protection raisonnable contre les parasites nuisant à une installation résidentielle. Ce matériel génère, utilise et peut émettre des ondes radio électriques, et lorsqu'il n'est pas installé et utilisé selon les instructions, peut causer des parasites nuisant aux communications radio. Il n'y a toutefois aucune garantie qu'il n'y aura pas de parasites dans une installation en particulier. Si ce matériel cause des parasites à la réception d'ondes radio ou de télévision, ce qui peut être déterminé en l'éteignant et en l'allumant, l'utilisateur est invité à essayer de corriger le problème des parasites par l'une ou l'autre des mesures suivantes :

- Réorienter ou déplacer l'antenne de réception.
- Augmenter la distance entre le matériel et la réception.
- Brancher le matériel dans une prise sur un autre circuit que celui où le récepteur est branché.
- Consulter le distributeur ou un technicien radio ou TV expérimenté pour des conseils.

L'appareil respecte la partie 15 des règlements de la FCC. Le fonctionnement doit respecter les deux conditions suivantes : 1) cet appareil ne doit pas causer de parasites et (2) cet appareil doit accepter tous les parasites reçus, notamment ceux pouvant causer un fonctionnement non voulu.

Pour Industrie Canada

Norme canadienne NMB-3(A)

Pour la CE (UE)

L'appareil respecte la directive 2014/30/UE relative à la compatibilité électromagnétique et la directive 2014/35/EU sur les limites de basse tension

Informations sur l'élimination

Déchets d'équipements électriques et électroniques



Ce symbole sur le produit indique que, conformément à la directive européenne 2012/19/UE régissant les déchets d'équipements électriques et électroniques, ce produit ne doit pas être jeté avec les autres déchets municipaux. Veuillez éliminer vos déchets d'équipement en les remettant à un point de collecte désigné pour le recyclage des déchets d'équipements électriques et électroniques. Pour éviter d'éventuels dommages à l'environnement ou à la santé humaine dus à une élimination incontrôlée des déchets, veuillez séparer ces articles des autres types de déchets et les recycler de manière responsable afin de promouvoir la réutilisation durable des ressources matérielles. Pour plus d'informations sur le recyclage de ce produit, veuillez contacter votre mairie ou votre service municipal d'élimination des déchets.

Important Safety Instructions

Before using this monitor, please read the user manual thoroughly to help protect against property damage and to ensure your personal safety and the safety of others.

Be sure to observe the following instructions.

For installation or adjustment, please follow the instructions in this manual and refer all servicing to qualified service personnel.

Usage Notice



Warning

To prevent the risk of fire or shock hazards, do not expose the product to moisture.



Warning

Please do not open or disassemble the product, as this may cause electric shock.



Warning

The AC power cord must be connected to an outlet with ground connection.



Warning

There is a risk of explosion if the IR remote batteries are replaced with an incorrect type. Dispose of used batteries in accordance with local regulations.

Precautions

Please follow all warnings, precautions and maintenance as recommended in this user's manual to maximize the life of your unit.

Do :

Disconnect the power plug from AC outlet if the product is not going to be used for an extended period of time.

Don't :

Do not operate the product under the following conditions:

Extremely hot, cold or humid environment.

Areas susceptible to excessive dust and dirt.

Near any appliance generating a strong electric and/or magnetic field.

Avis d'utilisation



Mise en garde

Pour prévenir les risques d'incendie ou d'électrocution, ne pas exposer le produit à l'humidité.



Mise en garde

Prière de ne pas ouvrir ou démonter le produit, car cela pourrait entraîner l'électrocution.



Mise en garde

Le cordon d'alimentation doit être branché à une prise pourvue d'une mise à la terre.



Mise en garde

Il y a un risque d'explosion si la batterie est remplacée par un type incorrect. Jetez les piles usagées conformément aux réglementations locales.

Précautions

Veuillez suivre toutes les mises en garde, précautions et entretiens recommandés dans ce manuel d'utilisation pour maximiser la durée de vie de votre unité.

À faire :

Utiliser uniquement l'adaptateur d'alimentation prescrit pour votre appareil.

Débrancher l'appareil lorsqu'il n'est pas utilisé pendant une période prolongée.

À éviter :

Ne jamais utiliser l'appareil dans les conditions suivantes :

des conditions environnementales extrêmes (chaud, froid ou humidité)

des endroits remplis de poussières et de saletés.

à proximité d'appareils produisant un fort champ magnétique

Warnings

To turn off monitor power, press the “Power” button on the OSD keypad.

When turning off the monitor by pressing the POWER button on the OSD wired remote, the main power of the monitor is not turned off completely. To disconnect power completely, remove the power plug from the outlet.



If any of the following occur, remove the power plug from the outlet immediately:

the monitor is dropped; the housing is damaged; water is spilled onto or objects dropped inside the monitor.

Failure to immediately remove the power plug may result in fire or electrical shock. Contact qualified service personnel for inspection.



If the power cord or plug is damaged or becomes hot, turn the monitor off, make sure the power plug has cooled down and remove the power plug from the outlet.

If the monitor is still used in this condition, it may cause fire or electrical shock. Contact your dealer for replacement.



Si l'un des événements suivants se produit, débranchez immédiatement la fiche d'alimentation de la prise: le moniteur est tombé; le boîtier est endommagé; de l'eau est renversée ou des objets tombent à l'intérieur du moniteur.

Si vous ne débranchez pas immédiatement la fiche d'alimentation, vous risquez de provoquer un incendie ou un choc électrique. Contacter le personnel de service qualifié pour inspection.



Si le cordon d'alimentation ou la fiche est endommagé, ou devient chaud, éteignez le moniteur, assurez-vous que la fiche d'alimentation a refroidi et débranchez la fiche d'alimentation de la prise.

Si le moniteur est toujours utilisé dans cet état, il peut provoquer un incendie ou un choc électrique. Contactez votre revendeur pour le remplacement.



Warning This product can expose the user to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

Installation Tips

No Touch Screen Drivers Required

MicroTouch Touch Monitors are plug and play when connected to Windows 7 or later Windows devices; Kernel 3.2 for most builds of Linux; Android 1.0 and most other modern Operating Systems. If you have a non-Plug and Play operating system, please refer to the Technical Support Section of www.microtouch.com or contact MicroTouch Technical Support to inquire about driver support for your particular operating system.

Things to avoid

Don't install in a high-temperature environment. Operating temperature: 0°C to 40°C (0°F to 104°F), storage temperature -20°C - 60°C (-4°F to 140°F). If the monitor is used in a high temperature environment or near any heat sources, the case and other parts may become distorted or damaged, resulting in overheating or electrical shock.

Don't install in a high-humidity environment.

Operating humidity: 35-85%

Don't insert the power plug into anything other than a grounded 100-240V AC outlet.

Don't use a damaged power plug or worn outlet.

The use of extension cords is not recommended.

The use of the power supply that comes with the MicroTouch product is strongly recommended.

Don't place the monitor on an unstable shelf or surface.

Don't place objects on the monitor.

If the monitor is covered or the vents are blocked, the monitor could overheat and cause a fire.

Please keep a 10 cm minimum distance between the monitor and the surrounding structures to allow sufficient ventilation.

Don't move the monitor when it is connected to the power cord and AV cables.

When moving the monitor, make sure to remove the power plug and cables from the outlet or source.

If you encounter a problem during installation, please contact your dealer for assistance. Do not attempt to repair or open the monitor.

Lifetime Optimization

Avoiding Image Retention

If the same video image is displayed for a long time, that image can potentially be retained, or “burned-in” permanently, adversely affecting the quality of any other images thereafter. Several steps may be taken to reduce the possibility of image retention:

- Turn on IRFM. In the Advanced Settings section of the On-Screen Display (detailed later in this manual), Enable the IRFM item. IRFM, or Image Retention Frame Motion, shifts the entire image position very slightly at timed intervals. The goal is to display different parts of the image in each pixel position without the observer noticing the image position shift. This may also be referred to as “pixel shifting”. IRFM can be helpful in avoiding image retention if the image is complex, but less so if the image has large areas of the same color.
- If a constant image is required, it is recommended to occasionally run a brief video, a screen saver moving image or to display a black screen.
- The monitor should not be continuously operated for longer than 20 hours per day.

Avoiding Temperature Damage

The specified operating temperature is 0 to 40 degrees Celsius, but for certain operating environments the ambient temperature should be limited to a maximum of 35 degrees Celsius unless forced-air cooling is added.

Tabletop Mounting

Some applications call for the monitor to be mounted flat (horizontally), as in a table. In standard vertical or near-vertical mounting, the chimney effect naturally encourages hot air to exit the top of the monitor and cooler air to be drawn into the bottom of the monitor. This natural convection cannot take place if the monitor is mounted horizontally, particularly when it is surrounded by additional horizontal material (as in, a table). It is therefore very important to use a fan or fans, or a fan and ductwork, to ensure that air can move continuously through the monitor. Efficient ductwork (to direct air into the cooling holes) reduces the fan requirements.

Enclosed Mounting

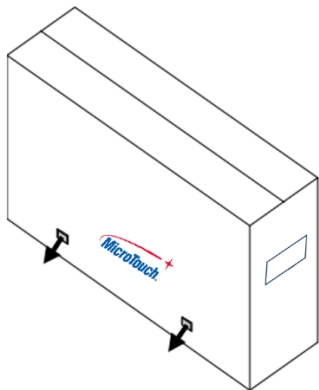
Forced-air cooling is also required if the monitor is to be mounted in a kiosk or other enclosure. Again, efficient ductwork reduces fan requirements. The monitor must not be mounted in a sealed, unventilated enclosure.

Unpacking

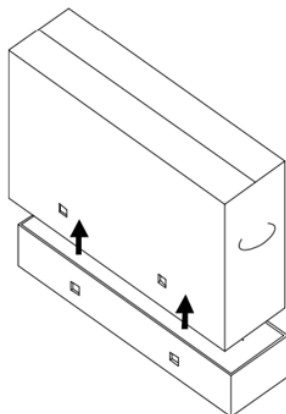
These Digital Signage monitors, being designed for the commercial market, are not like large format home television products. These products weigh between sixty and one hundred pounds, and they are large and unwieldy, so at least two people are required for any unpacking and handling of these Digital Signage products.

Four plastic locking clips secure the outer part of the box to the lower inner portion. To unpack the monitor, follow these steps.

1. Orient the box such that the plastic locks are nearest the floor.



2. Pull the loop on each plastic lock to open the lock. Continue pulling to remove the plastic lock entirely from its opening in the box
3. Repeat for the three other locks.
4. Set the locks aside.
5. Lift/slide the outer part of the box up to remove it from the bottom part of the box and its contents.



6. Remove the packing material.
7. Lift the monitor out of the lower packing material/box.
8. Remove the protective plastic bag.
9. Lay the monitor on its back until it is ready to be mounted.

Product Overview

This product is a large, wide format LCD monitor with a projected capacitive (PCAP) touch screen. It is particularly well suited for information display, wayfinding and informational assistance, and industrial process display and control, as well as many other applications.

Key Features

Size: 490DS: 48.5"; 550DS: 54.6"; 650DS: 64.5"

Resolution: 3840 x 2160

Contrast Ratio: 1100:1

Aspect Ratio: 16x9

Brightness: 500 cd/m²

View Angle: H:178°, V:178°

Video Port: 1 VGA (DB15), 2 HDMI, 1 DP

VESA mount: 490DS, 550DS: 300 mm x 300 mm; 650DS: 400 mm x 400 mm

Front is sealed to IP65 standard

P-cap touch with up to 55 simultaneous touches


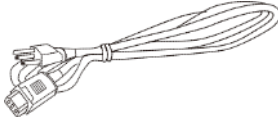



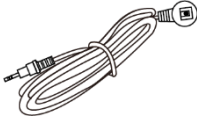
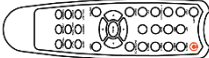
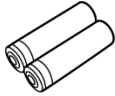
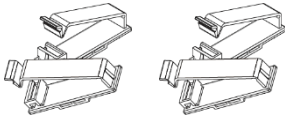
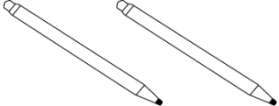
Plug and Play: no touch driver installation required for most modern operating systems

Warranty: 3 years

Unpacking

When unpacking please ensure that all the items in the following Accessories section are included. If any are missing or damaged, please contact the place of purchase for a replacement.

Package Contents

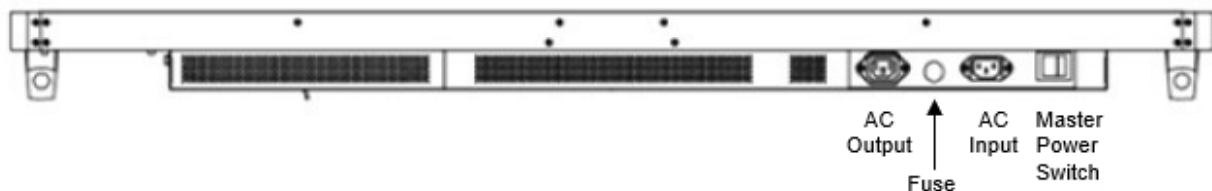
No.	Part	Picture	Qty
1	LCD Monitor		1
2	AC power cable IEC C13 (1.8m)		1
3	AC power output cable IEC C14 to C15 (0.3m)		1
4	HDMI cable (1.8m)		1
5	USB A-B cable (1.8m)		1
6	IR Extender cable		1
7	Remote Control		1
8	Batteries		2
9	Cable Clips		4
10	Passive Pens		2

Usage Duty Cycle

The MicroTouch Mach Digital Signage Touch Monitor is designed for 24x7 operation within the recommended temperature and humidity limits listed in the product specifications. However, in order to save energy and extend the life of the display, MicroTouch recommends shutting the display off when not in use. A number of tools such as the RTC and Scheduler built into the Mach Touch Monitor On-Screen Display settings and the computer's operating system Power Settings can be used to manage the usage cycle.

Product Setup and Use

Power Connectors & Master Power Switch

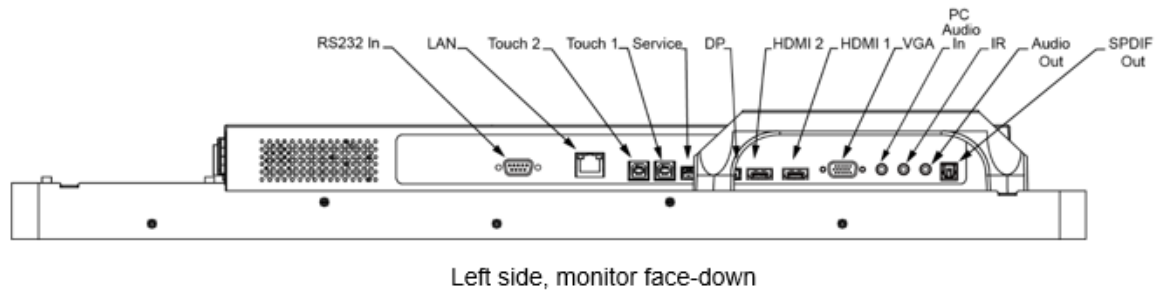


The AC power connectors and Master Power Switch are on the right side of the bottom of the monitor as viewed from the front (the illustration above is as seen with the monitor resting on its top).

NOTE: For the monitor to work, the Master Power switch must be in the On position (the side of the rocker switch closest to the edge of the monitor must be pressed down.)

The AC Output connector may be used to supply AC power to an additional device using the included AC Power Output cable. The AC power output is fused, limiting the current to 3 amps. Replace the fuse with only a 3A fuse.

Input/Output Connectors



Video Signal Input Connectors

DP (Display Port): Digital video input.

HDMI1 and 2: Digital video inputs (selectable via the IR remote/On-Screen Display).

VGA: Analog video input.

Touch Output Connectors

Touch 1 and 2: USB type-B ports supply the touch function output.

Audio

PC Audio In: Audio input from computer/source equipment.

Audio Out: Pass-through audio output.

SPDIF Out: Sony/Phillips Digital Interconnect Format audio output.

IR

Infrared receiver extension cable for IR remote.

Service

For factory use only.

RS-232 and LAN

Remote management interfaces.

RS-232 is for serial terminal interface. See the RS-232 Control Command Format section for setting particulars. The BAUD rate can be set using the OSD.

The LAN interface is for Telnet terminal interface. Network settings can be set using the OSD.

Configuration and Cable Options

Power is supplied by the included AC power cable. Connect the cable to the monitor (see location in Power Connectors and Power Switch section, above), then plug it into an AC wall outlet.

The AC output can be used to power additional equipment using the included AC output cable.

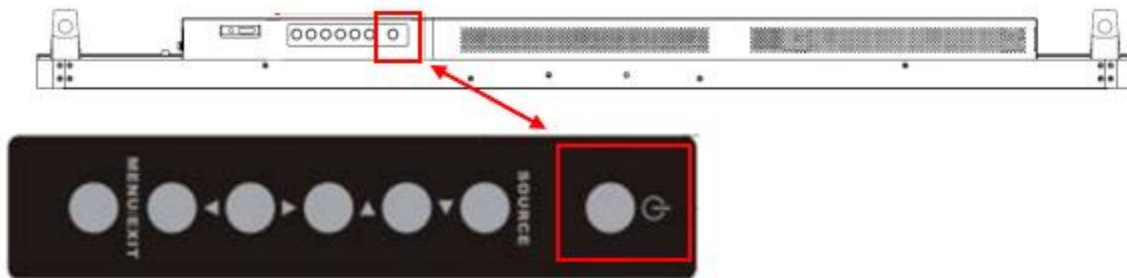
Connect the included USB cable from one of the monitor's touch outputs to the computer/source equipment. The two Touch outputs may be connected to two computers/source equipment.

Connect the included HDMI video cable from the computer/video source to one of the monitor's HDMI inputs. The two HDMI inputs may be connected to two computers/source equipment. The DP or VGA video may also be connected.

Connect the computer/source equipment's audio output to the monitor's PC Audio In connector.

Turning Monitor On and Off

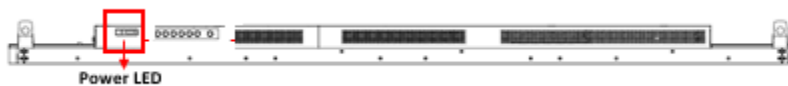
Make sure the Master Power switch (see location in Power Connectors and Power Switch section, above) **is turned on** – the side of the rocker switch closest to the edge of the monitor must be pressed down. Press the power On/Off switch (left side of the top of the monitor's rear protrusion as viewed from the front, per below), or the Power button on the IR Remote. **NOTE:** The monitor will remain black for approximately 10 seconds, after which "No Signal" will be displayed for an additional few seconds. The image should then be displayed.



Note: If there is no video input signal for a preset period, the monitor will automatically go into standby mode. Allow up to 10 seconds for the video to reappear after the signal is reapplied.

Power Status LED

The LED on the top left of the monitor shows the monitor power and video status per the table below.



Power LED Status	Condition
Green	Power on
Blinking Orange	Power on, no video signal detected
Orange	Power saving mode
Off	Power off

Note: The Power Status LED may be turned on or off using the On-Screen Display Basic Settings menu.

Energy Star Compliance

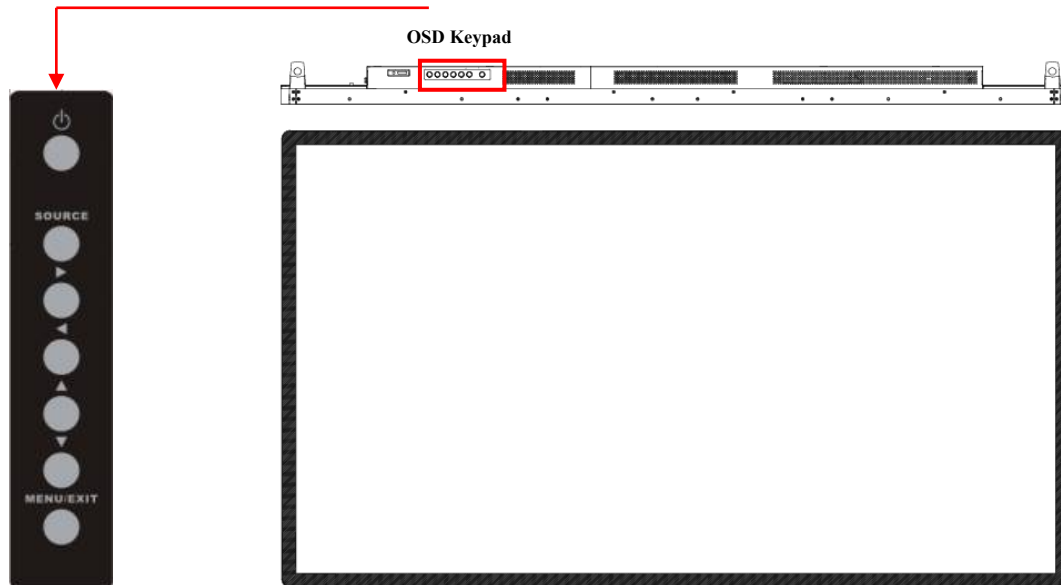


ENERGY STAR is a program run by the U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (DOE) that promotes energy efficiency. This product complies with ENERGY STAR requirements when using the as-shipped “factory default” settings. Changing the factory default picture settings or enabling other features will increase power consumption that could exceed the limits necessary to comply with the ENERGY STAR rating. Factory Default settings may be restored using the Advanced Settings menu in the On-Screen Display.






For more information on the ENERGY STAR program, refer to energystar.gov.

On-Screen Display (OSD)

The On-Screen Display, or OSD, allows the user to make changes to the video, audio, touch, and other settings. Button controls on the top rear portion of the monitor may be used for the OSD and to turn the monitor on and off, or the infrared (IR) remote control may be used for either function.



NOTE: The OSD keypad buttons function as though they were rotated to vertical, as shown in the illustration above; the Right/Left buttons are closest to the Power button and the Up/Down buttons are closest to the Menu button.

Button	Function	Description
	Power On/Off	
SOURCE	Video source selection	When not in OSD, allows direct selection of video input source.
	Right	Highlight menu item / Select item value
	Left	Return from Value to menu item
	Up	Select menu or menu item / Adjust selected value up
	Down	Select menu or menu item / Adjust selected value down
MENU / EXIT	Menu appears	Menu disappears / return to main item

Using the OSD Menus

With the power on, press **MENU**; the **on-screen menu** will pop up.

Use ▲,▼ (Up/Down) to navigate through the six menus (Image Settings, Display Settings, Audio Settings, Basic Settings, Advanced Settings, and Information). Use the Right button (►) to open the displayed menu and highlight the first item. Once an item is highlighted, ▲,▼ will step through and highlight the other items. ► will highlight the value of the selected item and once the value is highlighted, ▲,▼ will adjust the value up or down (or, in some cases, step through the various settings for that option). Once the adjustment has been made, ◀ or **MENU** will return to the previously highlighted item. Pressing **MENU** or ◀ again will un-highlight the item and allow selection of other menus, or pressing **MENU** twice will exit the OSD.

Note that some of the adjustments may be grayed out, indicating that they are not selectable. This indicates the use of a digital video input signal (DP or HDMI). These selections are fixed/not adjustable for digital video signals. The VGA video signal (because it is analog) may require all adjustments, so they are all selectable when VGA is being used.

The OSD menu will automatically close if left idle for a pre-set time.

Locking the OSD and Power button functions

Lock OSD: prevents all the monitor settings from being changed. When this function is activated, all OSD controls and hotkey operations will be disabled except for the Power and RS232 buttons.

- **Lock:** Press Enter, Enter, Exit, Exit, Enter and Exit on the IR remote; all buttons (including remote and keypad) will be locked except Power-on control (Power-off control will be disabled). LAN and RS232 control will not be disabled.
- **Unlock:** Press Enter, Enter, Exit, Exit, Enter and Exit on the IR remote again and all buttons will be unlocked.

IR Remote Control Function Description

Button Label	Function
INFO	Displays video input and resolution
POWER	Power On/Off
VGA	Selects VGA video input
DP1	Selects DisplayPort video input
HDMI1	Selects HDMI 1 video input
DP2	Not implemented
HDMI2	Selects HDMI 2 video input
PIP POSITION	Not implemented
OPS	Not implemented
HDMI3	Not implemented
PIP	Not implemented
HDMI4	Not implemented
SWAP	Not implemented
P SOURCE	Not implemented
▲	OSD Up
◀	OSD Left
MENU	OSD Menu
▶	OSD Right
▼	OSD Down
ENTER	Exits some functions
EXIT	Exit menu or selection
SCALING	Changes video format
FREEZE	Displays what is on-screen when the FREEZE button is pressed (capture a frame from a video, for instance). Press FREEZE again to continue live content display
MUTE	Mutes the audio
BRIGHTNESS	Adjust brightness with Left/Right buttons
CONTRAST	Adjust contrast with Left/Right buttons
AUTO	Optimizes picture when VGA input is selected
SOURCE	Displays the video input source menu
VOLUME -	Decreases volume one unit per click
VOLUME +	Increases volume one unit per click



Image Settings Menu

This menu is used for making common image adjustments.



Scheme

Selects the desired image display scheme. Press ► to highlight the value, then ▲ or ▼ to highlight the desired scheme, then press ◀. Press **MENU** twice to exit the OSD.

Range: User / Vivid / Cinema / Game / Sports

Brightness

Increases or decreases the brightness of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Contrast

Increases or decreases the contrast of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Sharpness

Adjusts the sharpness of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Saturation

Adjust the color intensity of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Hue

Adjust the hue (warmth) of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Backlight

Adjusts the backlight intensity of the image. Press ► to highlight the value, then ▲ or ▼ to set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: 0-100

Color Temp and Gamma

Adjusts the Gamma (color correction) and Color Temperature (individual Red, Green and Blue gains and offsets). Press ► to highlight the value, then ▲ or ▼ to select the option/set the desired level, then press ◀. Press **MENU** twice to exit the OSD.

Range: Gamma: 2.2 or Off

Range: Color Temp: USER, 6500K, 7500K, 9300K

Range: Gains and Offsets: 0-100

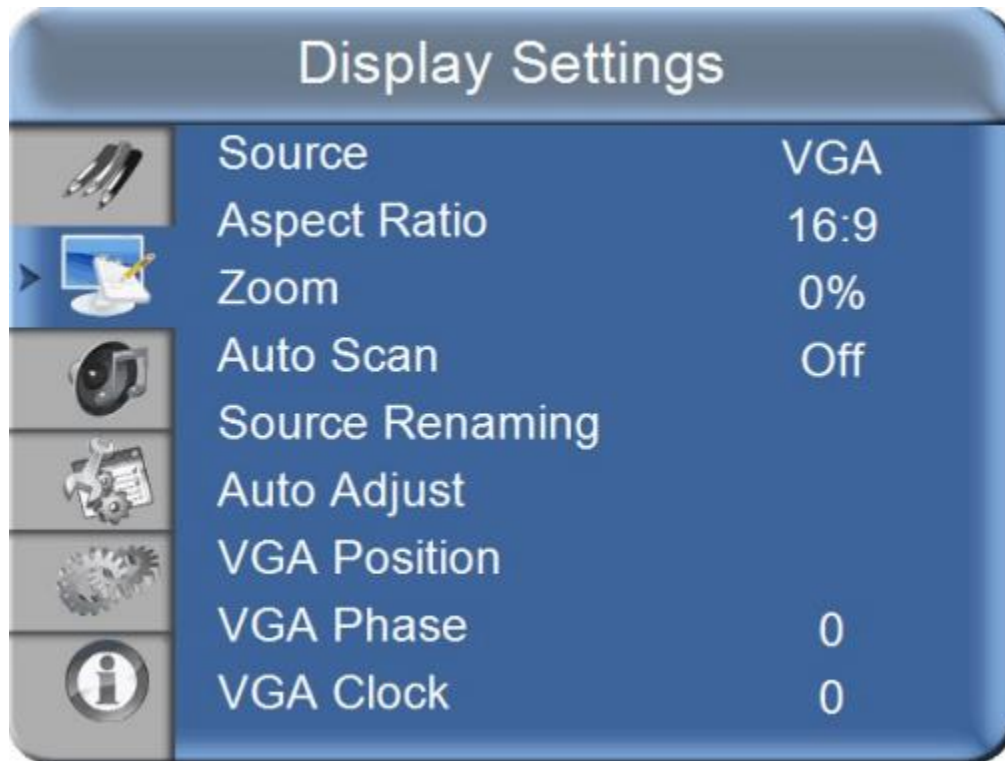
HDMI RGB Range

Adjusts the color depth of the image (only when HDMI input signal is in use). Press ► to highlight the value, then ▲ or ▼ to select the option, then press ◀. Press **MENU** twice to exit the OSD.

Range: AUTO, 0 – 255, 16 – 235

Display Settings Menu

This menu is used to adjust various display settings and options.



Source

Selects the video input source. Use Up or Down arrow to move through the video input options. When using the monitor OSD buttons, the Right arrow button selects the highlighted input; when using the IR remote, the ENTER button selects the highlighted input.

Options: VGA, DisplayPort, HDMI1, HDMI2

Aspect Ratio

Sets the aspect ratio of the image.

Options: 16:9, 4:3, Auto, Point To Point

Zoom

Enlarge the image beyond fit-to-display area

Range: 0% to 10%

Auto Scan

Automatically selects the connected video input source (or the next connected video input source if more than one is connected – priority is DP, HDMI1, HDMI2, VGA).

Options: ON, OFF

Source Renaming

Allows alternate names to be assigned to the four video inputs.

Options: Default, STB, DVD, BluRay DVD, HD DVD, XBOX, Wii, PS4, Computer, User (User allows custom name entry.)

Auto Adjust

Automatically adjust the image settings. This option is only available for VGA input.

Options: ON, OFF

VGA Position

Adjust the image position when using the VGA input signal.

Range: 0-100

VGA Phase

Adjusts the signal phase when using the VGA input signal.

Range: 0-255

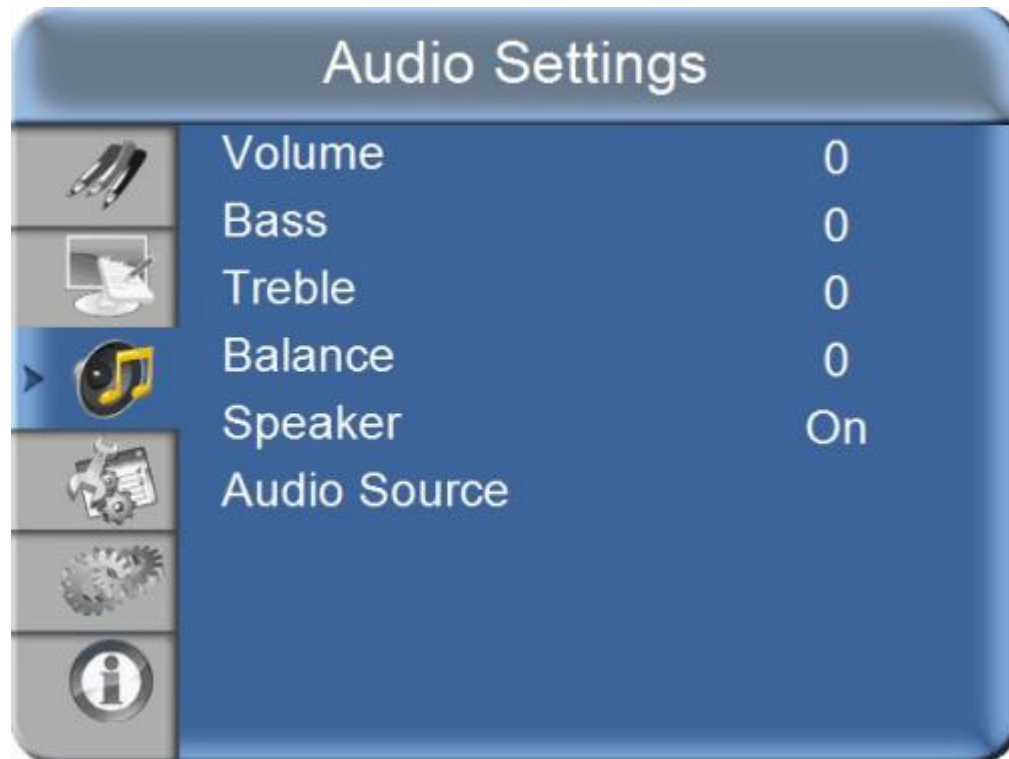
VGA Clock

Adjusts the signal timing clock when using the VGA input signal.

Range: 0-100

Audio Menu

This menu is used to make adjustments to the speakers.



Volume

Adjusts the speaker volume

Range: 0-100

Bass

Selects the speaker low frequency response.

Range: -10 to 10

Treble

Selects the speaker high frequency response.

Range: -10 to 10

Balance

Selects the balance between left and right speaker volume.

Range: 100/0 – 0/100

Speaker

Turns speaker audio On or Off.

Options: On, Off

Audio Source

Selects the source of the Audio signal.

Options: Audio In, Default

Basic Settings Menu

This menu is used to set Miscellaneous settings and options.



Horizontal Position

Sets the OSD Menu Horizontal Position.

Range: 0-100

Vertical Position

Sets the OSD Menu Vertical Position.

Range: 0-100

OSD Transparency

Sets the “see-through” level of the OSD Menu.

Range: 0 - 4

OSD Language

Sets the language of the OSD

Options: English, French, Japanese, German, Spanish, Italian

Splash Screen

Enables or disables the Startup logo.

Options: On/Off

Power LED

Enables or disables the Power LED

Options: On/Off

RTC and Schedule

Nine sub-menus allow scheduling of when the monitor is to automatically turn on and off.

Current Date and Time

Set the current date and time. All times are in 24 hour format. Right arrow selects each element, Up/Down to adjust. Must be set before scheduling can take effect.

Timer Mode

User: Manually configure the timer for individual days.

Every day: Configure the same settings for all days of the week.

Work day: Configure the same settings for Monday through Friday.

Seven sub-menus for Monday through Sunday

Set the on time and the off time for each day.

Check the Enable box for the desired days.

Ranges: 00:00 to 23:59 for both Off and On.

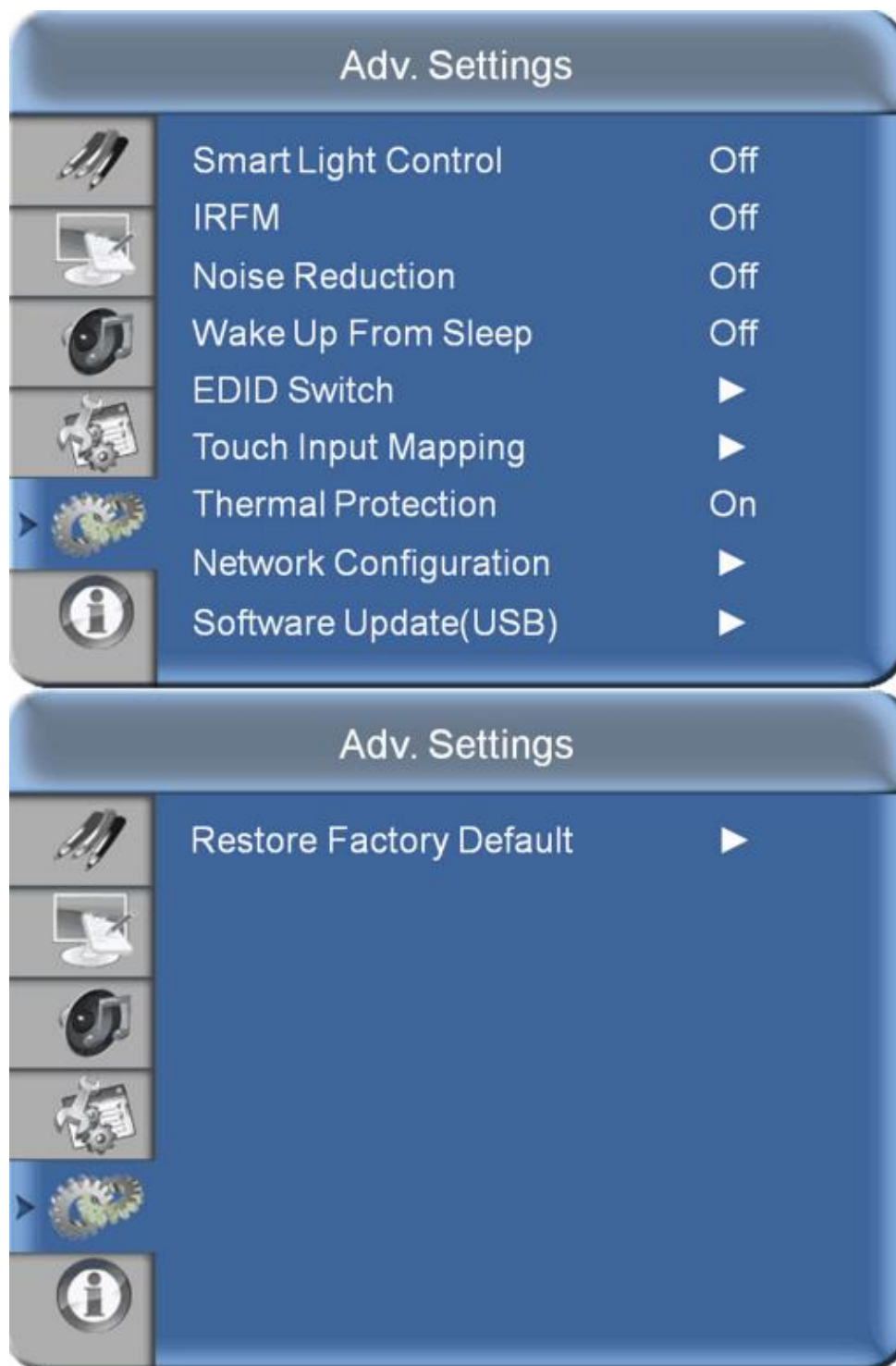
Power LED

Enables or disables the Power LED

Options: On/Off

Advanced Settings Menus

These menus are used to set and select Miscellaneous Advanced settings and options.



Smart light Control

Sets the backlight control function.

The DCR option dynamically sets the backlight level based on image content.

The Light Sensor option adjusts backlight intensity based on sensed ambient light.

Options: Off, DCR, Light Sensor

IRFM

Select the anti burn-in function.

Options: On/Off.

NOTE: Default is off. If your application displays a fixed image for long periods of time, IRFM should be turned on.

Noise Reduction

Selects the video noise reduction mode. For use with VGA input only.

Options: Off, High, Medium, Low

Wake up from Sleep

Adjusts the wake-up-from-sleep behavior.

Options:

VGA Only – The LCD panel wakes up from power saving mode when it receives an active video signal from its VGA (analog) input.

Digital, RS232, Ethernet: The LCD panel wakes up when it receives an active signal from its VGA, HDMI, DisplayPort or DVI inputs and can wake up by RS232 command as well.

Never Sleep: monitor never goes to sleep.

EDID Switch

Three sub-menus allow selecting which video input will control the EDID information. EDID is a communications channel that allows the monitor and the video controller to communicate to ensure proper setup and operation.

Options: DisplayPort, HDMI1, HDMI2

Sub-Options: 1080p, 4K2K@30 Hz, 4K2K@60 Hz

Touch Input Mapping

Select the touch input

Options: Auto, USB Touch1, USB Touch2

Thermal Protection

Turns the Thermal Protection scheme on or off. When On, a warning will be displayed if the internal temperature gets within 10 degrees C. of the 50 degree C. limit; within 5 C. the backlight is dimmed; at the limit the monitor is turned off. Default is ON. It is strongly recommended that Thermal Protection be left on, *especially* for enclosure-mounted or tabletop-mounted applications.

Options: On/Off.

Network Configuration

Allows configuration of the LAN remote control interface. See the Network Configuration Details table in the Appendix.

Software Update (USB)

Allows downloading of the latest monitor firmware.

Options: Scaler Firmware Update, subMCU Firmware Update

Each has a Yes/No option, selectable by the Left and Right buttons. **MENU** must be used to exit back to the previous selections.

Restore Factory Default

Resets all options and configurations to as-shipped condition.

Options: Yes, No

OSD Default Settings

Menu	Sub-Menu	Sub-Sub Menu	Default Settings
Image Settings	Scheme		User
	Brightness		50
	Contrast		50
	Sharpness		50
	Saturation		50
	Hue		50
	Backlight		80
	Color Temp & Gamma	Select Gamma	2.2
		Select Color Temp	9300K
		Select Red Gain	50
		Select Green Gain	50
		Select Blue Gain	50
		Select Red Offset	50
		Select Green Offset	50
		Select Blue Offset	50
	HDMI RGB Range		Auto
Display Settings	Source		VGA
	Aspect Ratio		16 :9
	Zoom		0
	Auto Scan		Off
	Source Renaming		Default
	Auto Adjust		N/A
	VGA Position		50
	VGA Phase		N/A
	VGA Clock		50
Audio Settings	Volume		User
	Bass		0
	Treble		0
	Balance		0
	Speaker		On
	Audio Source		Default

OSD Default Settings (continued)

Menu	Sub-Menu	Sub-Sub Menu	Default Settings
Basic Settings	Horizontal Pos		50
	Vertical Pos		50
	OSD Transparency		0
	OSD Timeout		30 sec.
	OSD Language		English
	Splash Screen		On
	Power LED		On
	RTC & Schedule	Current Time	--
		Timer Mode	User
		MON	00:00 00:00
		TUE	00:00 00:00
		WED	00:00 00:00
		THU	00:00 00:00
		FRI	00:00 00:00
		SAT	00:00 00:00
		SUN	00:00 00:00
Advanced Settings	Smart Light Control		Off
	IRFM		Off
	Noise Reduction		Off
	Wake up from Sleep		VGA only
	EDID Switch	DisplayPort	
		HDMI1	
		HDMI2	
	Touch Input Mapping		Auto
	Thermal Protection		On
	Network Configuration	See separate table below	--
	Software Update (USB)		--
	Restore Factory / ENERGY STAR Default		--

Mounting options

VESA Mount

The monitors have an integral VESA standard mount pattern that conforms to the “VESA Flat Display Mounting Interface Standard” which defines a physical mounting interface and corresponds to the standards for monitor mounting devices. The -490 and -550 have a 300 mm pattern, while the -650 has a 400 mm pattern, as illustrated on the following pages.

The VESA mounting bracket is not included; it must be obtained from a third party. Follow the mount manufacturer’s instructions for the type of mount you have selected. Refer all servicing to qualified service personnel.

Moving the display requires at least two people. To avoid damaging the front panel during the move, be sure to use the handles on the back of the display while lifting or moving the display.

Before installing, please make sure the wall or other mounting surface is strong enough to hold the weight of the display and the mount.

- Step 1: Select a sturdy, flat work surface of suitable size and strength to support the monitor.
- Step 2: Put a suitable pad material on the work surface to protect the display.
- Step 3: Place the display front side down on the padded work surface.
- Step 4: Remove the screws (M8*20) from the back of the display.
- Step 5: Align the mounting brackets with the display’s mounting holes and attach the brackets to the display using the screws (M8*20mm, 4pcs) removed in Step 2.

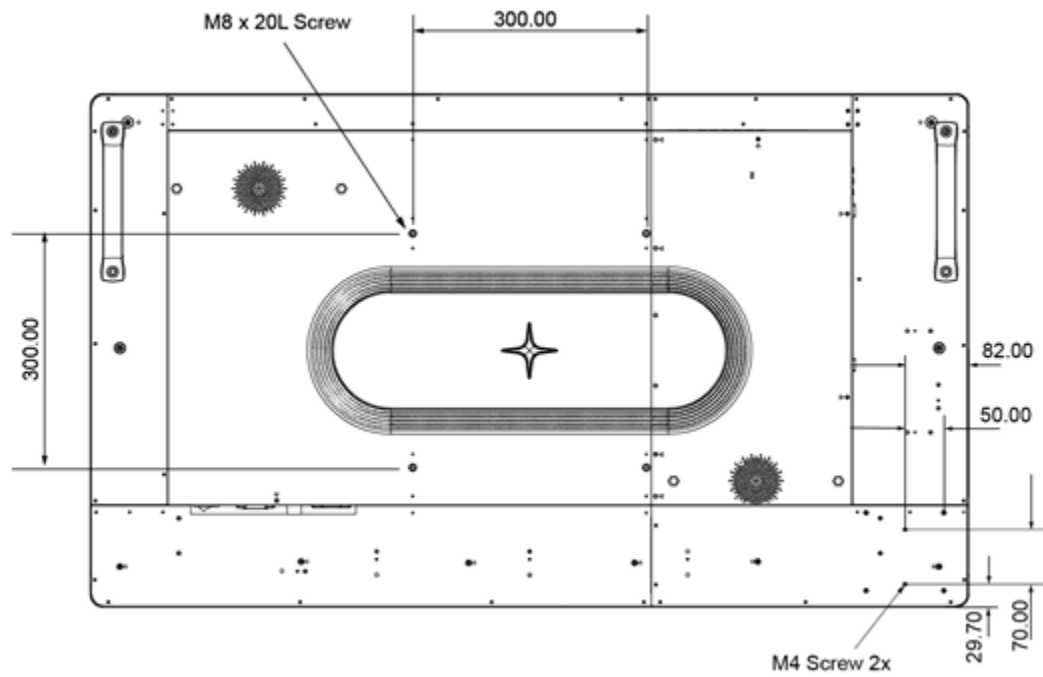
Warning

Please use the correct screws! The distance between the back cover surface and the bottom of the screw hole is 20 mm. Please use four M8 diameter screws with 20 mm length to mount the monitor.

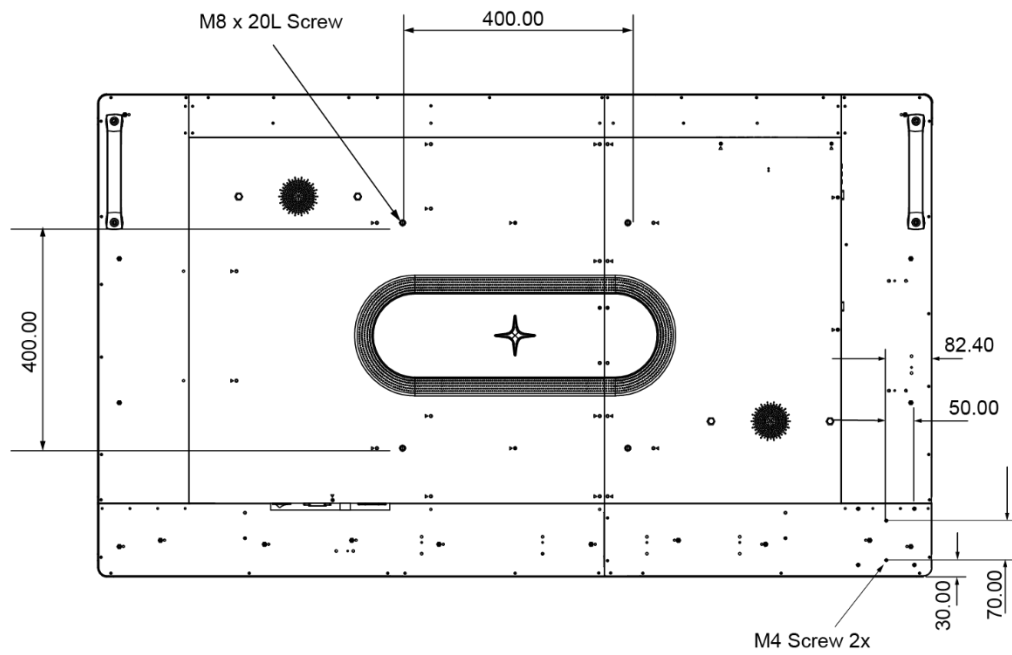
Mise en garde

Veuillez utiliser les vis correcte! La distance entre la surface du capot arrière et le fond du trou de vis est de 20 mm. Veuillez utiliser quatre vis de diamètre M8 d’une longueur de 20 mm pour monter le moniteur.

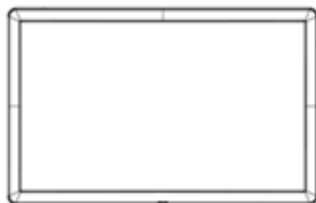
M1-490DS-A1, M1-550DS-A1



M1-650DS-A1

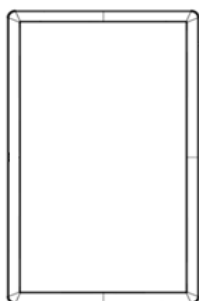


The monitor may be mounted in landscape or portrait orientation or flat, as in a table top.



Landscape orientation:

The controls must be at the top. The inputs/outputs must be on the left side as viewed from the front.



Landscape orientation:

inputs/outputs must be on the Bottom.

Tabletop mounting: Support the monitor using the VESA mounting pattern on the back. See the important Tabletop Mounting notes in the Lifetime Optimization section.

Specifications and Dimensions

Model	M1-490DS-A1	M1-550DS-A1	M1-650DS-A1
LCD Panel			
Size	48.5 inch	54.6 inch	64.5 inch
Resolution	3840 x 2160		
Monitor Area	1073.8 mm x 604 mm	1209.6 mm x 680.4 mm	1428.48 mm x 803.52 mm
Contrast	1100:1 (typ.)		
Brightness	450 nits (typ.)		
Response Time	8 ms (typ.)		
Viewing Angle	Typical 178° H / 178° V		
Touch System			
	P-CAP		
Touch Points	Up to 55 simultaneous touch points		
Touch Screen Interface	USB-HID (Type B)		
Operating System	Windows 7 / 8 / 10, Mac OS and Linux		
Coating	AG and AF Coating Semi-Tempered glass, 3mm		
Audio			
Speaker	2 channel x 10W / @4 ohm		
Power			
Power Supply	AC Input 100-240V (50/60Hz)	AC Input 100-240V (50/60Hz)	AC Input 100-240V (50/60Hz)
Power Consumption	70 W (typical) 150 W (max)	75 W (typical) 160 W (max)	85 W (typical) 185 W (max)
Power Saving	≤ 0.5W		
Dimensions			
Width x Height (mm)	1127.6 x 657.8	1264.2 x 734.6	1483.1 x 857.9
Depth (mm, w/o handle)	69.8	69.8	71.3
Depth (mm, with handle)	78.8		
Weight			
Net Weight	30 kg	36.4 kg	51.2 kg
Shipping Weight	36 kg	42.5 kg	59.2 kg

Model	M1-490DS-A1	M1-550DS-A1	M1-650DS-A1
Mounting			
VESA Mount Pattern (mm)	300 x 300	300 x 300	400 x 400
Environmental			
Operating Temperature	0°C - 40°C	0°C - 40°C	0°C - 40°C
Operating Humidity	35% - 85% RH. (non-condensing)		
Storage Temperature	-20°C - 60°C		
Storage Humidity	35% - 85% RH. (non-condensing)		

Supported Timings

Dot = resolution supported for this input type

Dash = resolution *not* supported for this input type

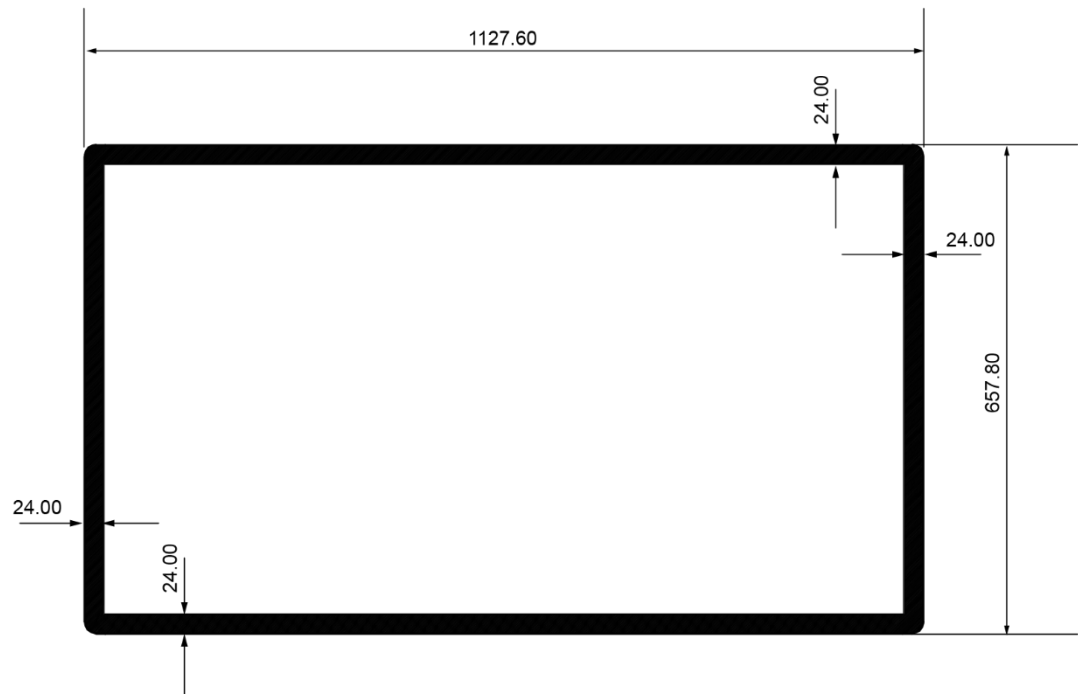
Signal Type	Resolution		fH (kHz)	fV (Hz)	Dot Clock (MHz)	VGA	HDMI	DP
VESA	VGA 640x480		31.469	59.94	25.175	•	•	•
			37.861	72.809	31.5	•	•	•
			37.5	75	31.5	•	•	•
	SVGA 800x600		35.156	56.25	36	•	•	•
			37.879	60.317	40	•	•	•
			48.077	72.188	50	•	•	•
			46.875	75	49.5	•	•	•
	XGA 1024x768		48.363	60.004	65	•	•	•
			56.476	70.069	75	•	•	•
			60.023	75.029	78.75	•	•	•
	WXGA1366x768		47.712	59.79	85.5	•	•	•
	1280 x 720		44.444	59.98	64	-	-	•
			44.772	59.86	74.5	-	-	•
			56.456	74.78	95.75	-	-	•
	1280 x 768		47.776	59.87	79.5	-	-	•
			47.396	59.995	68.25	-	-	•
	1280 x 800		49.306	59.91	71	•	•	•
			49.702	59.81	83	•	•	•
	SXGA	1152x864	67.5	75		•	•	•
		1280x1024	63.981	60.02		•	•	•
			79.976	75.025		•	•	•
	1440 x 900		55.469	59.901	88.75	-	-	•
			55.935	59.88	106.5	•	•	•
	WSXGA+ 1680 x1050		64.674	59.883	119	•	•	•
			65.29	59.954	146.25	•	•	•
	UXGA 1600 x 1200		75	60	162	•	•	•
	1920 x 1080		66.587	59.93	138.5	-	-	•
	WUXA 1920 x 1200		74.038	59.95	154	-	-	•
	QHD 2560x1440		88.787	59.951	241.5	-	•	•
	QSXGA 2560x1600		98.713	59.972	268.5	-	•	•

EDTV	480p	31.5	60	27.03	-	•	•
	576p	31.25	50	27	-	•	•
HDTV	720p	37.5	50	74.25	-	•	•
	1280x720	44.995	59.94	74.176	-	•	•
		45	60	74.25	-	•	•
	1080i	28.13	50	74.25	-	•	•
	1920x1080	33.716	59.94	74.176	-	•	•
		33.75	60	74.25	-	•	•
	1080p 1920x1080	27	24	74.25	-	•	•
		28.125	25	74.25	-	•	•
		33.75	30	74.25	-	•	•
		56.25	50	148.5	-	•	•
		67.433	59.94	148.352	-	•	•
		67.5	60	148.5	-	•	•
4K2K	3840x2160	54	24	297	-	•	•
		56.25	25	297	-	•	•
		67.5	30	297	-	•	•
		112.5	50	594	-	•	•
		133.313	59.997	533.25	-	•	•
		135	60	594	-	•	•

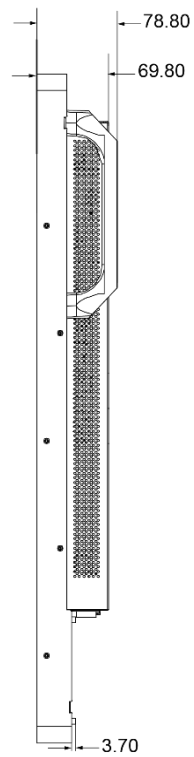
Dimensions

M1-490DS-A1

Front

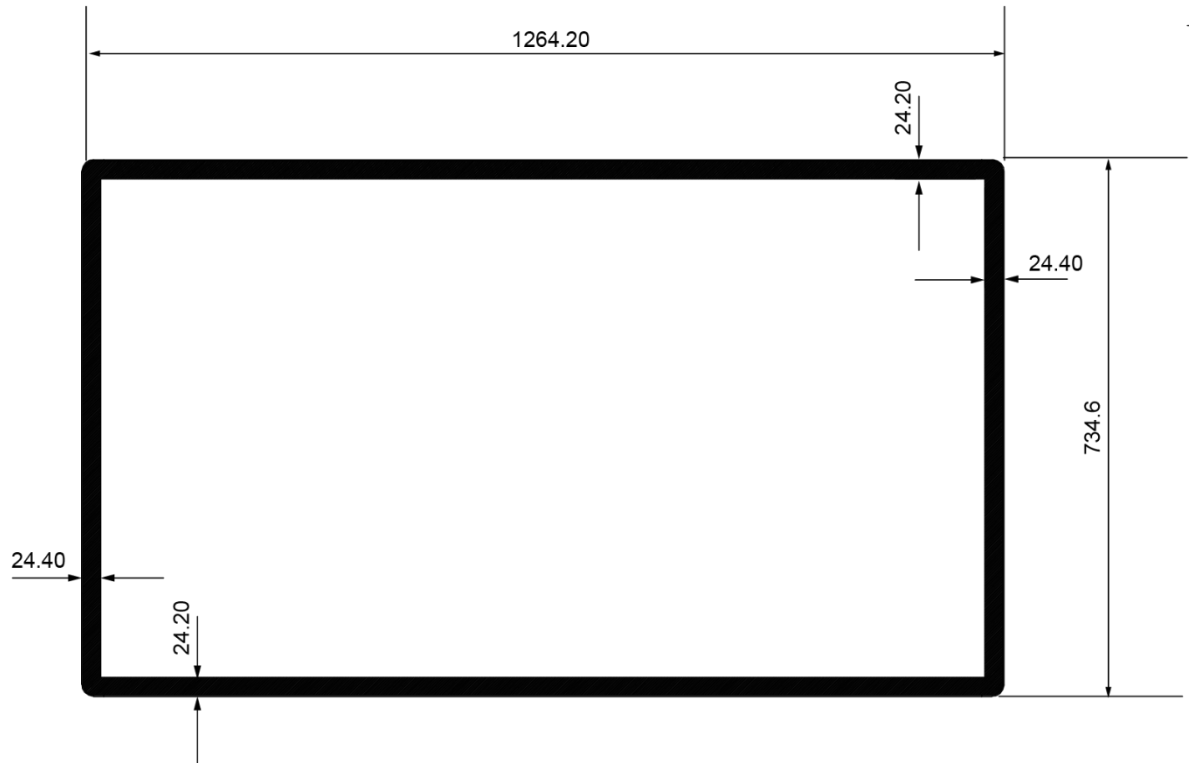


Side

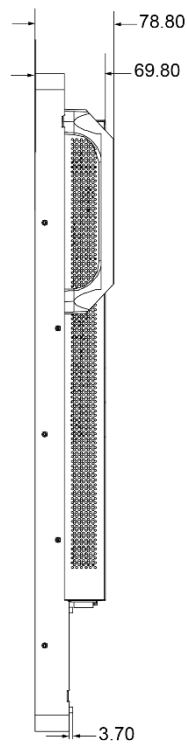


M1-550DS-A1

Front

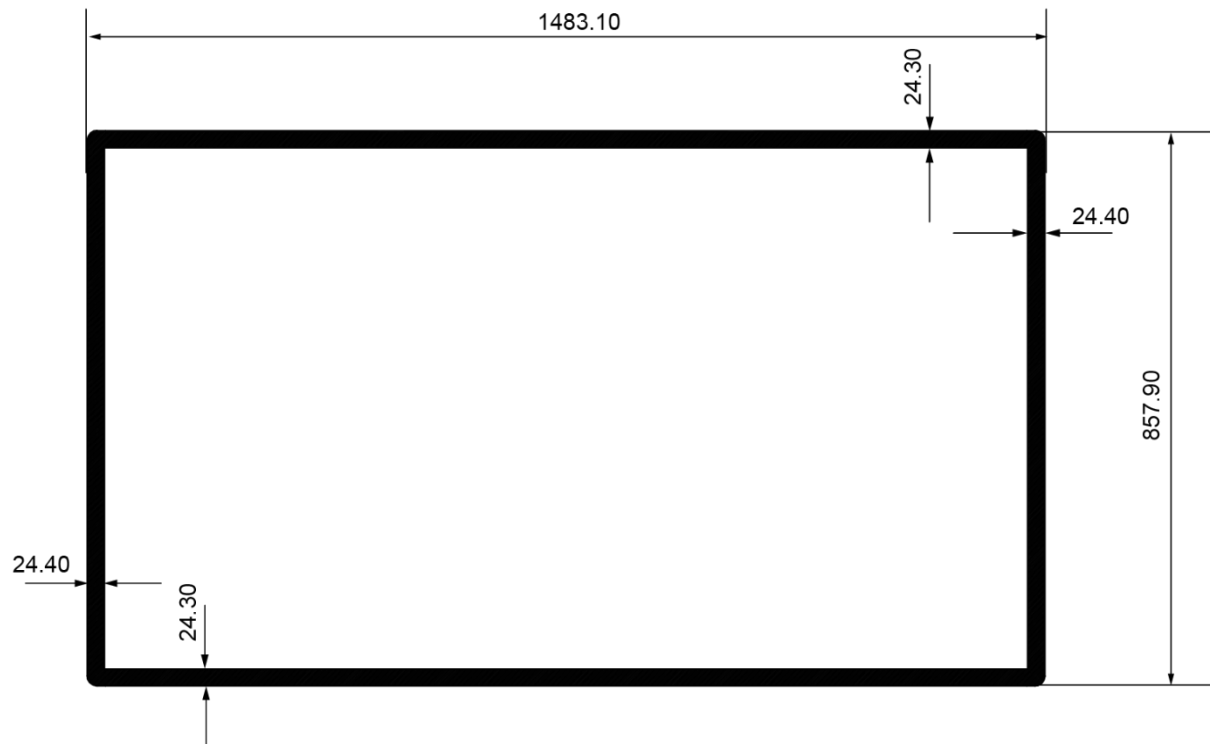


Side

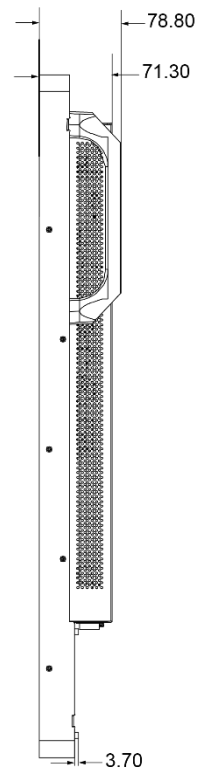


M1-650DS-A1

Front



Side

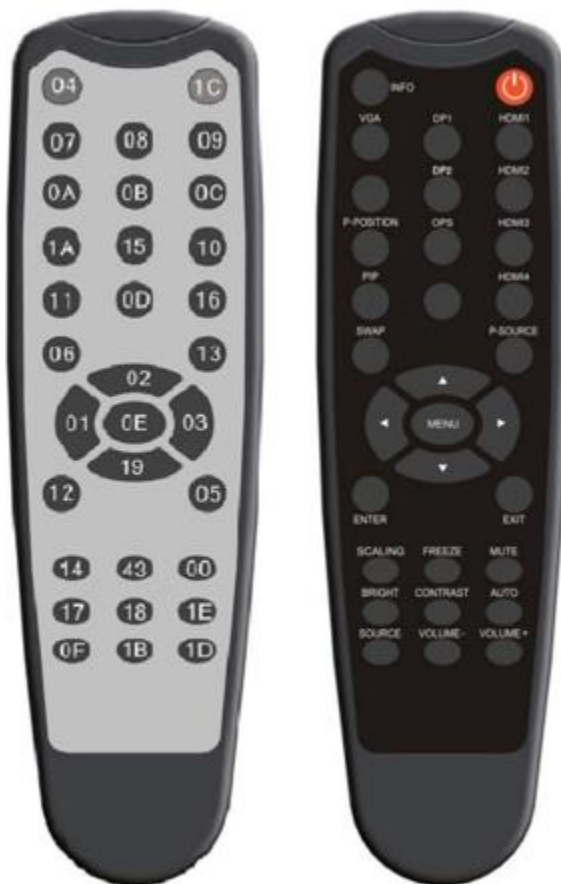


Appendix

IR Remote Button Codes

The button codes may be used to program a universal remote control.

No.	Function	Customer Code	Hex Code
1	INFO	40AF	04FB
2	POWER	40AF	1CE3
TTh3	VGA	40AF	07F8
4	DISPLAYPORT1	40AF	08F7
5	HDMI1	40AF	09F6
6	—	40AF	0AF5
7	DISPLAYPORT2	40AF	0BF4
8	HDMI2	40AF	0CF3
9	PIP POSITION (not implemented)	40AF	1AE5
10	OPS (not implemented)	40AF	15EA
11	HDMI3	40AF	10EF
12	PIP (not implemented)	40AF	11EE
13	—	40AF	0DF2
14	HDMI4	40AF	16E9
15	SWAP	40AF	06F9
16	PIP SOURCE (not implemented)	40AF	13EC
17	▲	40AF	02FD
18	◀	40AF	01FE
19	MENU	40AF	0EF1
20	▶	40AF	03FC
21	▼	40AF	19E6
22	ENTER	40AF	12ED
23	EXIT	40AF	05FA
24	SCALING	40AF	14EB
25	FREEZE	40AF	43BC
26	MUTE	40AF	00FF
27	BRIGHT	40AF	17E8
28	CONTRAST	40AF	18E7
29	AUTO	40AF	1EE1
30	SOURCE	40AF	0FF0
31	VOLUME-	40AF	1BE4
34	VOLUME+	40AF	1DE2



Network Configuration details

These settings are selectable from the Advanced Settings OSD menu.

Sub-Sub Menu	Sub-Sub-Sub Menu	Description	Setting	Default
Network Configuration	UART Baudrate	Adjusts the baud rate of serial port (RS-232)	115200 / 38400 / 19200 / 9600	115200
	Network	Enable network feature	No / Yes	No
	Dynamic IP	Enable Dynamic IP mode	On / Off	Off
	Static	Set Static IP address	255.255.255.255(0.0.0.0)	0.0.0.0
	Netmask	Set subnet mask	255.255.255.255(0.0.0.0)	0.0.0.0
	Gateway	Set gateway address	255.255.255.255(0.0.0.0)	0.0.0.0
	DNS	Set DNS address	255.255.255.255(0.0.0.0)	0.0.0.0
	Save Settings	Update the IP settings To net device	No / Yes	--
	Refresh	Refresh Dynamic IP info		--
	Power Status Alert	Power change notification sent letters	On / Off	Off
	Source Status Alert	Source change notification sent letters	On / Off	Off
	Lost Status Alert	Signal lost change notification sent letters	On / Off	Off
	Load Default	Load default network settings	No / Yes	--
	MAC Address	MAC Info	00:00:00:00:00:00	00:00:00:00:00:00

Ethernet communication is locked by default. Once unlocked it will remain unlocked unless Restore Factory Default is performed.

To unlock the Ethernet port:

1. Connect the ethernet port to a PC.
2. In the monitor's OSD Menu, select the Information menu.
3. Write down the monitor serial number ("SN" item).
4. Go to the Advanced Settings OSD menu, then select Network Configuration.
5. Write down the MAC Address.
6. Select Network, then toggle it from OFF to ON.
7. Open a browser window and type in the MAC address that you wrote down.
8. You will get the login box below.

The image shows a web-based login interface for a 'NetUart Module'. It is enclosed in a green border. At the top, the text 'NetUart Module' is centered. Below it are two light gray input fields: the first is labeled 'username' and the second is labeled 'password'. Under these fields is a solid green button with the word 'LOGIN' in white capital letters. At the bottom of the interface, the text 'Device IP:10.200.6.47' is displayed in a smaller font.

4. The username is "admin" and the password is the serial number that you wrote down. Please note The web login only unlocks the Ethernet commands and does not take you to a separate page to control the monitor.

The best way to send commands is using a Crestron-type controller.

RS-232 Control Command Format

STX(1byte) + **IDT**(1byte)+ **Type**(1byte)+ **CMD**(3bytes)+ **[Value/Reply(1byte)]** + **ETX**(1byte)

STX : Start byte = 07

IDT : Don't care

Type : Read or Write command, **01**: read, **02**: write; **00**: return to host (from monitor)

CMD : as following tables

Value : Setting Value of "Write Command"

Reply : Return Value of monitor

ETX : End byte = 08

Transmit from PC (Host)

Read command : 07 IDT 01 CMD 08 (7bytes)

Write/Setting command : 07 IDT 02 3-byte CMD VAL 08 (8bytes total)

Return from Monitor

The 3-byte Return CMD is the same as the 3-byte Send CMD.

The return command will be sent by the monitor to the Host after the action has been performed.

Serial Port Setting

Baud Rate	Data Bit	Parity Bit	Stop Bit
115200	8	None	1

Example command strings follow the table below.

Control Item	CMD MNEMONIC HEX Code	Value (HEX)	Reply (HEX)	Content
Power Control	POW 50 4F 57	00	00	Off (soft power)
		01	01	On (soft power)
Input Source	MIN 4D 49 4E	00	00	VGA
		09	09	HDMI 1
		0A	0A	HDMI 2
		0D	0D	Displayport
Display Adjustment	BRI 42 52 49	00-64	00-64	Back Light Brightness
	BRL 42 52 4C	00-64	00-64	Digital Brightness Level
	BLC 42 4C 43	00	00	Off (Back Light)
		01	01	On (Back Light)
	CON 43 4F 4E	00-64	00-64	Contrast
	HUE 48 55 45	00-64	00-64	Hue
	SAT 53 41 54	00-64	00-64	Saturation
	NOR 4E 4F 52	00	00	Noise Reduction :Off
		01	01	Noise Reduction :Low
		02	02	Noise Reduction :Medium
		03	03	Noise Reduction :High
	USR 55 53 52	00-64	00-64	Red Gain (mapping 0-100)
	USG 55 53 47	00-64	00-64	Green Gain (mapping 0-100)
	USB 55 53 42	00-64	00-64	Blue Gain (mapping 0-100)
	UOR 55 4F 52	00-64	00-64	Red Offset (mapping 0-100)
	UOG 55 4F 47	00-64	00-64	Green Offset (mapping 0-100)
	UOB 55 4F 42	00-64	00-64	Blue Offset (mapping 0-100)
	COT 43 4F 54	00	00	User
		01	01	6500K
		02	02	9300K

		06	06	5000K
		07	07	7500K
	GAC 47 41 43	00	00	Gamma Off
		01	01	Gamma 2.2
VGA Adjustment	PHA 50 48 41	00-64	00-64	Phase
	CLO 43 4C 4F	00-64	00-64	Clock
	HOR 48 4F 52	00-64	00-64	Horizontal Position
	VER 56 45 52	00-64	00-64	Vertical Position
	ADJ 41 44 4A	00	00	Auto Adjust (write only)
Sharpness	SHA 53 48 41	00-64	00-64	Sharpness
Scaling	ASP 41 53 50	00	00	Aspect ratio Native
		01	01	Full Screen
		02	02	Pillarbox/4:3
		04	04	Auto
	ZOM 5A 4F 4D	00-0A	00-0A	Adjust overscan ratio
RS-232 Baudrate Adjustment	BRA 42 52 41	00	00	115200
		01	01	38400
		02	02	19200
		03	03	9600
RCU = IR remote keys				
Other Control	RCU 52 43 55	00	00	MENU Key (write only)
		01	01	INFO Key (write only)
		02	02	UP Key (write only)
		03	03	DOWN Key (write only)
		04	04	LEFT Key (write only)
		05	05	RIGHT Key (write only)
		06	06	ENTER Key (write only)
		07	07	EXIT Key (write only)
		08	08	VGA Key (write only)
		0A	0A	HDMI1 Key (write only)
		0B	0B	HDMI2 Key (write only)
		0C	0C	DISPLAYPORT Key (write only)
		12	12	SOURCE Key (write only)

		17	17	SCALING Key (write only)
		18	18	FREEZE Key (write only)
		19	19	MUTE Key (write only)
		1A	1A	BRIGHT Key (write only)
		1B	1B	CONTRAST Key (write only)
		1C	1C	AUTO Key (write only)
		1D	1D	VOLUME+ Key (write only)
		1E	1E	VOLUME- Key (write only)
	ALL 41 4C 4C	00	00	Reset all monitor settings (write only)
	KLC 4B 4C 43	00	00	Un-lock keys (keypad & IR remote)
		01	01	Lock keys (keypad & IR remote)
	SER 53 45 52		13 bytes	Read Serial Number (read only)
	MNA 4D 4E 41		13 bytes	Read Model Name (read only)
	GVE 47 56 45		6 bytes	Read Firmware Version (read only)
Audio	VOL 56 4F 4C	00-64	00-64	Volume
	BAS 42 41 53	00-0D	00-14	Bass -10-0-+10
	TRE 54 52 45	00-0D	00-14	Treble -10-0-+10
	BAL 42 41 4C	00-0D	00-14	Balance -10-0-+10
	HAS 48 41 53	00	00	HDMI audio source :HDMI
		01	01	HDMI audio source :PC
	IAS 49 41 53	00	00	HDMI2 audio source :HDMI2
		00	00	HDMI2 audio source :PC
	DAS 44 41 53	00	00	DP audio source :DP
		01	01	DP audio source :PC
	INS 49 4E 53	00	00	Internal Speaker Off
		01	01	Internal Speaker On
	MUT 4D 55 54	00	00	Mute Off
		01	01	Mute On

Scheme selection	SCM 53 43 4D	00	00	User
		01	01	Sport
		02	02	Game
		02	02	Cinema/Movie
		04	04	Vivid
EcoMode WakeUp FromSleep	WFS 57 46 53	00	00	Set VGA_ONLY
		01	01	Set VGA_DIGITAL_RS232
		02	02	Set Never_Sleep
RTC	RTY 52 54 59	00-63	00-63	Set Real time Year
	RTM 52 54 4D	01-0C	01-0C	Set Real time Month
	RTD 52 54 44	01-1F	01-1F	Set Real time Day
	RTH 52 54 48	00-17	00-17	Set Real time Hour
	RTN 52 54 4E	00-3B	00-3B	Set Real time Minute
	TMS 54 4D 53	00	00	Same Settings On All (Everyday)
		01	01	Same Settings On Work Days (Workday)
		02	02	User
	AEN 41 45 4E	01	01	Sunday Alarm Enable (Note 1)
		02	02	Monday Alarm Enable (Note 1)
		04	04	Tuesday Alarm Enable (Note 1)
		08	08	Wednesday Alarm Enable (Note 1)
		10	10	Thursday Alarm Enable (Note 1)
		20	20	Friday Alarm Enable (Note 1)
		40	40	Saturday Alarm Enable (Note 1)
	AEF 41 45 46	01	01	Sunday Alarm Disable (Note 1)
		02	02	Monday Alarm Disable (Note 1)
		04	04	Tuesday Alarm Disable (Note 1)
		08	08	Wednesday Alarm Disable (Note 1)
		10	10	Thursday Alarm Disable (Note 1)
		20	20	Friday Alarm Disable (Note 1)
		40	40	Saturday Alarm Disable (Note 1)
	NNH 4E 4E 48	00-17	00-17	Monday On Hour

	NNM 4E 4E 4D	00-3B	00-3B	Monday On Minute
	NFH 4E 46 48	00-17	00-17	Monday Off Hour
	NFM 4E 46 4D	00-3B	00-3B	Monday Off Minute
	ENH 45 4E 48	00-17	00-17	Tuesday On Hour
	ENM 45 4E 4D	00-3B	00-3B	Tuesday On Minute
	EFH 45 46 48	00-17	00-17	Tuesday Off Hour
	EFM 45 46 4D	00-3B	00-3B	Tuesday Off Minute
	DNH 44 4E 48	00-17	00-17	Wednesday On Hour
	DNM 44 4E 4D	00-3B	00-3B	Wednesday On Minute
	DFH 44 46 48	00-17	00-17	Wednesday Off Hour
	DFM 44 46 4D	00-3B	00-3B	Wednesday Off Minute
	UNH 55 4E 48	00-17	00-17	Thursday On Hour
	UNM 55 4E 4D	00-3B	00-3B	Thursday On Minute
	UFH 55 46 48	00-17	00-17	Thursday Off Hour
	UFM 55 46 4D	00-3B	00-3B	Thursday Off Minute
	INH 49 4E 48	00-17	00-17	Friday On Hour
	INM 49 4E 4D	00-3B	00-3B	Friday On Minute
	IFH 49 46 48	00-17	00-17	Friday Off Hour
	IFM 49 46 4D	00-3B	00-3B	Friday Off Minute
	TNH 54 4E 48	00-17	00-17	Saturday On Hour
	TNM 54 4E 4D	00-3B	00-3B	Saturday On Minute

	TFH 54 46 48	00-17	00-17	Saturday Off Hour
	TFM 54 46 4D	00-3B	00-3B	Saturday Off Minute
	SNH 53 4E 48	00-17	00-17	Sunday On Hour
	SNM 53 4E 4D	00-3B	00-3B	Sunday On Minute
	SFH 53 46 48	00-17	00-17	Sunday Off Hour
	SFM 53 46 4D	00-3B	00-3B	Sunday Off Minute
Auto Scan	ATS 41 54 53	00	00	Off
		01	01	Main/On
IRFM	IRF 49 52 46	00	00	Off
		01	01	On
Smart Light Control	SLC 53 4C 43	00	00	Off
		01	01	DCR
		02	02	Light Sensor
Power LED	LED 4C 45 44	00	00	Off
		01	01	On
HDMI1 EDID	EH1 45 48 31	00	00	1080P
		01	01	4K30Hz
		02	02	4K60Hz
HDMI 2 EDID	EH2 45 48 32	00	00	1080P
		01	01	4K30Hz
		02	02	4K60Hz
DisplayPort 1 EDID	ED1 45 44 31	00	00	1080P
		01	01	4K30Hz
		02	02	4K60Hz
HDMI RGB Color Range	HCR 48 43 52	00	00	Auto Detect
		01	01	Full Range
		02	02	Limited Range
Thermal Protection	THP 54 48 50	00	00	Disable Thermal Protection mechanism
		01	01	Enable Thermal Protection mechanism
VGA Touch USB	ATU 41 54 55	00	00	Switch to USB1 port for VGA
		01	01	Switch to USB2 port for VGA
DP Touch USB	DTU 44 54 55	00	00	Switch to USB1 port for DP
		01	01	Switch to USB2 port for DP

HDMI1 Touch USB	H1U 48 31 55	00	00	Switch to USB1 port for HDMI1
		01	01	Switch to USB2 port for HDMI1
HDMI2 Touch USB	H2U 48 32 55	00	00	Switch to USB1 port for HDMI2
		01	01	Switch to USB2 port for HDMI2
Transparency	OST 4F 53 54	00-04	00-04	OSD Transparency (D Board: 00-0A)
H Position	OSH 4F 53 48	00-64	00-64	OSD H Position
V Position	OSV 4F 53 56	00-64	00-64	OSD V Position
OSD Language	OSL 4F 53 4C	00	00	English
		01	01	STD:Chinese ; other:French
		02	02	German
		0D	0D	Italian
		10	10	Spanish
		14	14	Japanese
OSD Timeout	OSO 4F 53 4F	05-3C	05-3C	OSD Timeout (5, 10, 20, 30, 60 sec)
Splash Screen	SPS 53 50 53	00	00	Off
		01	01	On
Network Enable	NEW 4E 57 45	00	00	No
		01	01	Yes
Dynamic IP	DIP 44 49 50	00	00	Disable
		01	01	Enable
Default	LDS 4C 44 53	00	00	Load network default settings (It will take about 15 seconds.) (write only)
E-Mail Alert	PSA 50 53 41	00	00	Off (Power Status Alert)
		01	01	On (Power Status Alert)
	SSA 53 53 41	00	00	Off (Source Status Alert)
		01	01	On (Source Status Alert)
	SLA 53 4C 41	00	00	Off (Signal Lost Alert)
		01	01	On (Signal Lost Alert)
Static IP Settings	IP1 49 50 31	00-FF	00-FF	Static IP Address 1
	IP2 49 50 32	00-FF	00-FF	Static IP Address 2
	IP3 49 50 33	00-FF	00-FF	Static IP Address 3
	IP4 49 50 34	00-FF	00-FF	Static IP Address 4

	MK1 4D 4B 31	00-FF	00-FF	Subnet Mask 1
	MK2 4D 4B 32	00-FF	00-FF	Subnet Mask 2
	MK3 4D 4B 33	00-FF	00-FF	Subnet Mask 3
	MK4 4D 4B 33	00-FF	00-FF	Subnet Mask 4
	GW1 47 57 31	00-FF	00-FF	Gateway 1
	GW2 47 57 32	00-FF	00-FF	Gateway 2
	GW3 47 57 33	00-FF	00-FF	Gateway 3
	GW4 47 57 34	00-FF	00-FF	Gateway 4
	FD1 46 44 31	00-FF	00-FF	DNS Address 1
	FD2 46 44 32	00-FF	00-FF	DNS Address 2
	FD3 46 44 33	00-FF	00-FF	DNS Address 3
	FD4 46 44 34	00-FF	00-FF	DNS Address 4
	SNS 53 4E 53	00	00	Save Network Settings (Available only if Dynamic IP is disabled) (write only)
	MAC 4D 41 43	00-05	00-FF	Querying MAC ID #0-#5 (write only)

Note 1:

The data value of AEN and AEF can be configured by bit.

Bit0: Sunday

Bit1: Monday

Bit2: Tuesday

Bit3: Wednesday

Bit4: Thursday

Bit5: Friday

Bit6: Saturday

To enable alarm for whole week: 0x07+IDT+0x02+AEN+0x7F+0x08

To disable alarm for Wed, Sat and Sun: 0x07+IDT+0x02+AEF+0x49+0x08

Example command strings

Command codes are red, command data is blue, return data is bold black

Power Control and Input Source

Turn monitor power off [CMD: POW]

[Transmit] : PC → 07 01 02 **50 4F 57** 00 08 → Monitor

[Return] : Monitor → 07 01 00 50 4F 57 **00** 08 → PC

Turn monitor power on [CMD: POW]

[Transmit] : PC → 07 01 02 **50 4F 57** 01 08 → Monitor

[Return] : Monitor → 07 01 00 50 4F 57 **01** 08 → PC

Read Power Status from monitor [CMD: POW]

[Transmit] : PC → 07 01 01 **50 4F 57** 08 → Monitor

[Return] : Monitor → 07 01 00 50 4F 57 **XX** 08 → PC (**XX** = 0, the set is off. **XX** = 1, the set is on.)

Display Adjustment

Read back light from monitor [CMD: BRI] (If the setting of back light is **80**)

[Transmit] : PC → 07 01 01 **42 52 49** 08 → Monitor

[Return] : Monitor → 07 01 00 42 52 49 **50** 08 → PC

Set back light 80 to monitor [CMD: BRI]

[Transmit] : PC → 07 01 02 **42 52 49** 50 08 → Monitor

[Return] : Monitor → 07 01 00 42 52 49 **50** 08 → PC

Set Contrast 30 to monitor [CMD: CON]

[Transmit] : PC → 07 01 **02 43 4F 4E** 1E 08 → Monitor

[Return] : Monitor → 07 01 00 43 4F 4E **1E** 08 → PC

Read Contrast from monitor [CMD: CON] (If the monitor contrast setting is 50 digital / 32 hex)

[Transmit] : PC → 07 0101 **43 4F 4E** 08 → Monitor

[Return] : Monitor → 07 01 00 43 4F 4E **32** 08 → Monitor

Scaling Adjustment

Set monitor to Pillar box [CMD: ASP]

[Transmit] : PC → 07 01 02 **41 53 50** 02 08 → Monitor

[Return] : Monitor → 07 01 00 41 53 50 **02** 08 → PC

Other Control

Adjust up to monitor [CMD: RCU]

[Transmit] : PC → 07 01 02 **52 43 55** 02 08 → Monitor

[Return] : Monitor → 07 01 00 52 43 55 **02** 08 → PC

Read serial number monitor [CMD: SER]

[Transmit] : PC → 07 01 01 **53 45 52** 08 → Monitor

[Return] : Monitor → 07 01 00 53 45 52 S(0) ... S(12) 08 → PC , S(0) - S(12): SN in ASCII

Cleaning

Turn off the product and disconnect from AC power before cleaning. Turning the product off protects against accidental touch selections that could cause problems or hazardous results. Disconnecting power protects against hazardous interaction between accidental liquid entry and electricity.

To clean the case, dampen a clean cloth lightly with water and a mild detergent and wipe gently. Use a soft, dry cloth to clean areas that have ventilation openings to avoid getting any liquid or moisture inside. If liquid does get inside, do not use the product until it has been inspected and tested by a qualified service technician.

To clean the touch screen, apply a glass cleaning solution to a soft cloth and wipe the screen clean. To ensure that liquid does not enter the product, do not spray cleaning solution directly onto the touch screen or any other part.

Do not use volatile solvents, waxes or any abrasive cleaners on any part of the product.

Solutions to Common Problems

No image on monitor

Check that the video signal source device is turned on.

Check that the selected video input signal matches the video connection.

The monitor or computer may be in SLEEP mode. Press any key/move the mouse/touch the touchscreen and wait a few seconds to see if the image appears.

Check that the AC cable is securely connected to the wall outlet.

Monitor display is dim.

Use the OSD controls to increase the brightness.

Use the OSD controls to increase the contrast.

Can only adjust Contrast and Brightness using OSD, cannot select Position, AutoAdjust, etc.

Monitor is connected to a digital video signal source (HDMI or DP), which does not need such adjustments. Only analog (VGA) video signal needs these adjustments.

Monitor displays the “Out of Range” message.

This message will only occur when using the VGA video signal input; use either the HDMI or Display Port video signal input if your signal source equipment supports either of those.

Reduce the resolution to a resolution the monitor supports – see the Supported Timings chart in the Specifications and Dimensions section of this manual.

Monitor display image looks strange.

Try the Auto Adjust function in the OSD (only available when using the VGA video signal input).

Adjust your computer's resolution/timing mode to be within the allowable timing ranges specified for your touch monitor (see section above).

Touch functionality doesn't work or works incorrectly.

Make sure the USB cable is properly connected.

Ensure that the monitor is in an upright position with nothing touching the screen, then cycle power Off/On.

Legacy operating systems, prior to circa 2007, may require drivers to support Touch Devices. Please contact MicroTouch Technical Support.

Neither the OSD nor power buttons respond when pressed.

See the Lock/Unlock section to check if both functions are locked.

Warranty Information

Except as otherwise stated herein, or in an order acknowledgment delivered to Buyer, Seller warrants to Buyer that the Product shall be free of defects in materials and workmanship. The warranty for the touchscreen display and their components is three years. Seller makes no warranty regarding the model life of components. Seller's suppliers may at any time and from time to time make changes in the components delivered as Products or components. Buyer shall notify Seller in writing promptly (and in no case later than 30 days after discovery) of the failure of any Product to conform to the warranty set forth above; shall describe in commercially reasonable detail in such notice the symptoms associated with such failure; and shall provide to Seller the opportunity to inspect such Products as installed, if possible. The notice must be received by Seller during the Warranty Period for such product, unless otherwise directed in writing by the Seller. Within thirty days after submitting such notice, Buyer shall package the allegedly defective Product in its original shipping carton(s) or a functional equivalent and shall ship to Seller at Buyer's expense and risk. Within a reasonable time after receipt of the allegedly defective Product and verification by Seller that the Product fails to meet the warranty set forth above, Seller shall correct such failure by, at Seller's options, either (i) modifying or repairing the Product or (ii) replacing the Product. Such modification, repair, or replacement and the return shipment of the Product with minimum insurance to Buyer shall be at Seller's expense. Buyer shall bear the risk of loss or damage in transit and may insure the Product. Buyer shall reimburse Seller for transportation cost incurred for Product returned but not found by Seller to be defective. Modification or repair, of Products may, at Seller's option, take place either at Seller's facilities or at Buyer's premises. If Seller is unable to modify, repair, or replace a Product to conform to the warranty set forth above, then Seller shall, at Seller's option, either refund to Buyer or credit to Buyer's account the purchase price of the Product less depreciation calculated on a straight-line basis over Seller's stated Warranty Period. These remedies shall be the buyer's exclusive remedies for breach of warranty. Except for the express warranty set forth above, seller grants no other warranties, express or implied by statute or otherwise, regarding the products, their fitness for any purpose, their quality, their merchantability, their non-infringement, or otherwise. No employee of Seller or any other party is authorized to make any warranty for the goods other than the warranty set forth herein. Seller's liability under the warranty shall be limited to a refund of the purchase price of the product. In no event shall Seller be liable for the cost of procurement or installation of substitute goods by Buyer or for any special, consequential, indirect, or incidental damages. Buyer assumes the risk and agrees to indemnify Seller against and hold Seller harmless from all liability relating to (i) assessing the suitability for Buyer's intended use of the Products and of any system design or drawing and (ii) determining the compliance of Buyer's use of the Products with applicable laws, regulations, codes, and standards. Buyer retains and accepts full responsibility for all warranty and other claims relating to or arising from Buyer's products, which include or incorporate Products or components manufactured or supplied by Seller. Buyer is solely responsible for any and all representations and warranties regarding the Products made or authorized by Buyer. Buyer will indemnify Seller and hold Seller harmless from any liability, claims, loss, cost, or expenses (including reasonable attorney's fees) attributable to Buyer's products or representations or warranties concerning same.

RoHS Declaration

Equipment name : Touch LCD Monitor Type designation (Type) : M1-490DS-A1 M1-550DS-A1 M1-650DS-A1						
Component	Restricted substances and their chemical symbols					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr ⁺⁶)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Plastic Parts	○	○	○	○	○	○
Metal Parts	-	○	○	○	○	○
Cable components	-	○	○	○	○	○
LCD Panel	-	○	○	○	○	○
Touch Panel	-	○	○	○	○	○
PCBA	-	○	○	○	○	○
Software	○	○	○	○	○	○
Notes						
<p>"○" indicates that the percentage of the restricted substance does not exceed the permissible limit.</p> <p>"-" indicates that the restricted substance is exempt.</p>						



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