

Multi Format Broadcast LCD Monitor

Operation Manual_v1.1

LHM-420A

LHM-460A

LHM-550A

TVlogic Always ON-AIR



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FCC (Federal Communications Commission)

This equipment has been tested and found to comply with the limits for 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 to correct the interference at his own expense

CAUTION: Change or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Disposal of Old Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packing indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.

1. Caution

● Power Requirements

- AC 100 ~ 240V

- All operating instructions must be read and understood before the product is operated.
 - These safety and operating instructions must be kept in a safe place for future reference.
 - All warnings on the product and in the instructions must be observed closely.
 - All operating instructions must be followed.
 - Do not use attachments not recommended by the manufacturer. Use of inadequate attachments can result in accidents.
 - This product must be operated on a power source specified on the specification label. If you are not sure of the type of power supply used in your home, consult your dealer or local power company. For units designed to operate on batteries or another power source, refer to the operating instructions.
 - The power cords must be routed properly to prevent people from stepping on them or objects from resting on them. Check the cords at the plugs and product.
 - Do not overload AC outlets or extension cords. Overloading can cause fire or electric shock.
 - Never insert an object into the product through vents or openings. High voltage flows in the product, and inserting an object can cause electric shock and/or short internal parts. For the same reason, do not spill water or liquid on the product.
 - Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other dangerous conditions. Request a qualified service person to perform servicing.
- If any of the following conditions occurs, unplug the power cord from the AC outlet, and request a qualified service person to perform repairs.
 - a. When the power cord or plug is damaged.
 - b. When a liquid was spilled on the product or when objects have fallen into the product.
 - c. When the product has been exposed to rain or water.
 - d. When the product does not operate properly as described in the operating instructions. Do not touch the controls other than those described in the operating instructions. Improper adjustment of controls not described in the instructions can cause damage, which often requires extensive adjustment work by a qualified technician.
 - e. When the product has been dropped or damaged.
 - f. When the product displays an abnormal condition. Any noticeable abnormality in the product indicates that the product needs servicing.
 - In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
 - Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.

1. Caution

- When mounting the product on a wall or ceiling, be sure to install the product according to the method recommended by the manufacturer.
- Unplug the power cord from the AC outlet before cleaning the product. Use a damp cloth to clean the product. Do not use liquid cleaners or aerosol cleaners.
- Unplug the power cord from the AC outlet if you do not use the product for considerably long time.
- Do not use the product near water, such as bathtub, washbasin, kitchen sink and laundry tub, swimming pool and in a wet basement.
- Keep the product away from direct rays of the Sun-light.
- Do not place the product on an unstable cart, stand, tripod or table. Placing the product on an unstable base can cause the product to fall, resulting in serious personal injuries as well as damage to the product. Use only a cart, stand, tripod, bracket or table recommended by the manufacturer or sold with the product. When mounting the product on a wall, be sure to follow the manufacturer's instruction. Use only the mounting hardware recommended by the manufacturer.
- When relocating the product placed on a cart, it must be moved with the utmost care. Sudden stops, excessive force and uneven floor surface can cause the product to fall from the cart.
- The vents and other openings in the cabinet are designed for ventilation. Do not cover or block these vents and openings since insufficient ventilation can cause overheating and/or shorten the life of the product. Do not place the product on a bed, sofa, rug or other similar surface, since they can block ventilation openings. This product is not designed for built-in installation; do not place the product in an enclosed place such as a bookcase or rack, unless proper ventilation is provided or the manufacturer's instructions are followed.
- The LCD panel used in this product is made of glass. Therefore, it can break when the product is dropped or applied with impact. Be careful not to be injured by broken glass pieces in case the LCD panel breaks.
- Keep the product away from heat sources such as radiators, heaters, stoves and other heat generating products (including amplifiers).

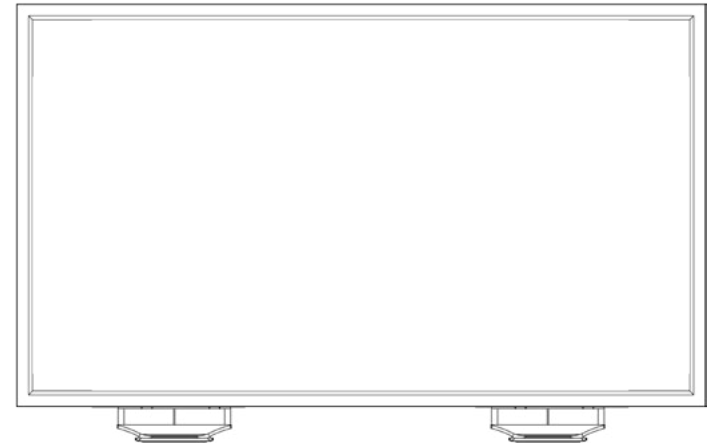
2. Main Features

LHM-420A/460A/550A Monitor contains the following features.

- **Compatible with various SDI signals formats**
 - This product is compatible with various SDI signals - 480i,576i,720p,1080i/p, 1080psf
- **DVI Digital(HDCP)/ Analog input support**
 - DVI Digital(HDCP) and DVI Analog(VGA) Inputs are available without any additional accessory.
- **HDMI(HDCP) input support**
 - HDMI(HDCP) input is available without any other accessory.
- **All-in-one type system**
 - Slim and all-in-one type monitor that requires no other accessories and optimized for space utilization.
- **BLUE ONLY/MONO**
- **H/V delay**
- **Wide screen compatible**
 - Wide screen for native 16:9 aspect ratio monitoring.
- **Remote control function**
 - The product can be remotely controlled using external switch or RS-422 communication & Remote controller.
- **RS422 feature support**
 - This product supports protocols provided by TVLogic.
- **Additional Features**
 - Wide Viewing Angle, VESA Mounting , 4000:1 Contrast ratio, 450 cd/m² brightness , Easy to operate OSD user interface,

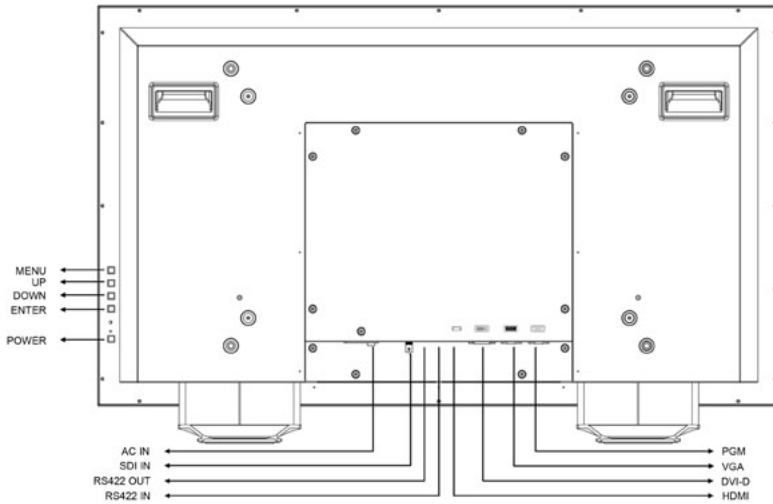
3. Controls & Functions

LHM-420A/460A/550A : Front



3. Controls & Functions

LHM-420A/460A/550A : REAR



- **[MENU] button**
 - Press the button for less than 2 seconds to activate the main OSD menu.
 - Used to return from sub menu to main menu.
 - Press the button for more than 2 seconds to activate Input Select menu. (SDI, HDMI, DVI, VGA)
 - Use the [Up]/[Down] button to change the Input Signal.
- **[UP] button**
 - Used to navigate the OSD menu.
- **[DOWN] button**
 - Used to navigate the OSD menu.
- **[ENTER] button**
 - Used to confirm a chosen value (or mode) when using OSD menu or direct mode selection.
 - When OSD menu is inactivated, press the button to adjust the value of Brightness, Contrast, Chroma, Phase, or Aperture.

3. Controls & Functions

LHM-420A/460A/550A : REAR

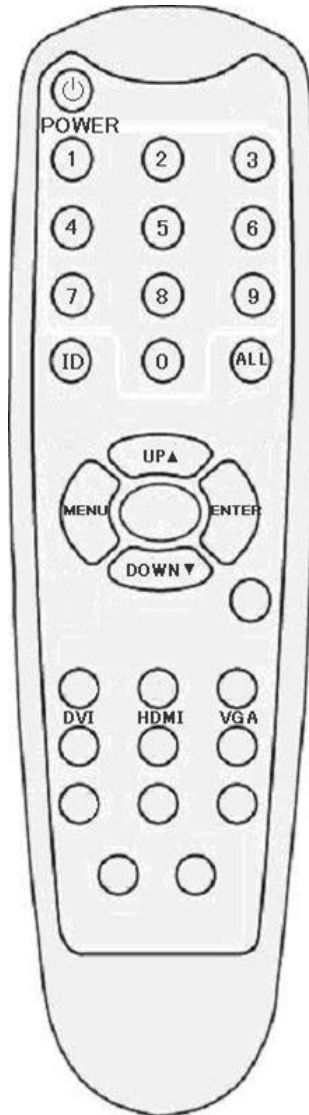
- **[STANDBY] button**
 - STANDBY On/Off
- **[LED] indicator**
 - Indicates the status of power connection and monitor operation.
 - The LED is off with power off.
 - The LED is red when the monitor is in waiting mode with power on.
 - The LED is green when the monitor is operating.
- **RS232(DB-9)**
 - Input connector for FACTORY PGM allowing for firmware updates.
- **SDI(BNC) IN**
 - Input connection for HD/SD SDI
- **RS-422/485 IN (RJ-45)**
 - Input connection for RS-485
- **HDMI (HDMI) IN**
 - Input connection for HDMIDVI (DVI-D) IN
 - Input connection for DVI
- **VGA (DB-15) IN**
 - Input connection for Analog VGA
- **~AC IN & S/W**
 - Used to supply AC power & Power On/Off
 - AC power : 100V~240V 50/60Hz

<Warning!!>

When using the product make sure to ground, whenever possible, before connecting the input signal cable in order to prevent any possible damage to the product or connected devices. The damage may include signal noise, malfunction of main board or display panel. And the connected devices such as camera or video source player may also be influenced through signal cable. Please check if the AC power source and the power extender or power distributor is grounded.

3. Controls & Functions

Remote Controller



3. Controls & Functions

Remote Controller

- **[POWER] button**
 - STANDBY On/Off
- **[ENTER] button**
 - Press the button for less than 2 seconds to activate the main OSD menu.
 - Used to return from sub menu to main menu.
 - Press the button for more than 2 seconds to activate Input Select menu. (SDI, HDMI, DVI, VGA)
 - Use the [Up]/[Down] button to change the Input Signal.
- **[UP] button**
 - Used to navigate the OSD menu.
- **[DOWN] button**
 - Used to navigate the OSD menu. Also, used to activate Auto Adjustment in VGA mode.
- **[MENU] button**
 - Used to confirm a chosen value (or mode) when using OSD menu or direct mode selection.
 - When OSD menu is inactivated, press the button to adjust the value of Brightness, Contrast, Chroma, Phase, or Aperture.

4. Menu Tree & Adjustment

[1] Menu Organization

- This Picture is the menu structure for the product.



[2] Menu Control

- You may control various different functions using MENU, UP/DOWN and ENTER buttons on the bottom of the monitor front.

[3] Menu Control Sequence

1. Press the MENU button to activate the OSD menu on the screen.
2. Move to a desired sub-menu using the UP/DOWN button.
3. After selecting a sub-menu, press the ENTER button to select an item with the UP/DOWN button.
4. Press the ENTER button to select the desired item. (The selected sub-menu will be highlighted.)
5. Press the ENTER button to save the new value after adjusting the value with the UP/DOWN button. (Verified by highlighted field returning to default black color)
6. Press the MENU button once to return to the previous menu and if there is no previous menu, the OSD menu will be removed from the screen.

5. Menu Operations

[1] Picture

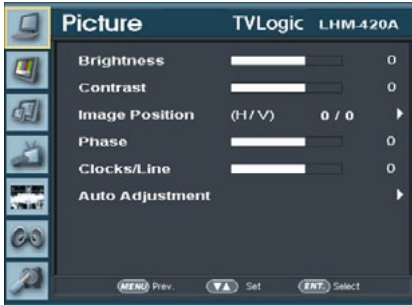


- **Brightness**
 - This item controls the degree of brightness between -128 ~ 127.
 - # Brightness can be adjusted by using the [Enter] button on the front of the monitor.
- **Contrast**
 - This item controls the contrast ration between -128 ~ 127.
 - # Contrast can be adjusted by using the [Enter] button on the front of the monitor.
- **Chroma**
 - This item controls saturation between -128 ~ 127.
 - # Chroma can be adjusted by using the [Enter] button on the front of the monitor.

- **Phase**
 - This item controls phase value (Hue) between -180 ~ 180.
 - # Phase can be adjusted by using the [Enter] button on the front of the monitor.
- **Aperture**
 - This item controls the picture sharpness between -12 ~ 12.
 - # Sharpness can be adjusted by using the [Enter] button on the front of the monitor.

5. Menu Operations

[2] Picture(VGA)



- **Brightness**
 - This item controls the degree of brightness between -128 ~ 127.
 - # Brightness can be adjusted by using the [Enter] button on the front of the monitor.
- **Contrast**
 - This item controls the contrast ration between -128 ~ 127.
 - # Contrast can be adjusted by using the [Enter] button on the front of the monitor.
- **Image Position**
 - This item controls the position(H/V) of the image in DVI Analog mode.



- **Phase**
 - This item controls phase value.
 - # If phase is not set to correct value, image may display artifacts and out of focus.
- **Clocks/Line**
 - This item is adjust timing for signal sync.
 - # If signal sync is not set to correct value, image may display flickering and drop.
- **Auto Adjustment**
 - This item adjusts the input signal automatically. Phase, Clocks/Line, and Image Position are also adjusted.
 - # if image doesn't display correctly after the Auto Adjustment, select it again for correct adjustment.
 - Auto Adjustment activates automatically when input signal resolution changes.

5. Menu Operations

[3]Color



- **Color Temp**
 - This item controls color temperature and allows instant access to preset color temperature settings of 3200K, 5600K, 6500K, 9300K and USER 1/2/3.
 - In USER1/2/3 mode, user can define custom RGB GAIN and BIAS values.
- **Gain Red**
 - This item controls red gain value between -256 ~ 127.
 - # Only available in USER1/2/3 mode.
- **Gain Green**
 - This item controls green gain value between -256 ~ 127.
 - # Only available in USER1/2/3 mode.
- **Gain Blue**
 - This item controls blue gain value between -256 ~ 127.
 - # Only available in USER1/2/3 mode.

- **Bias Red**
 - This item adjusts black level to control red color between -100 ~ 100 .
 - # Only available in USER1/2/3 mode.
- **Bias Green**
 - This item adjusts black level to control green color between -100 ~ 100.
 - # Only available in USER1/2/3 mode.
- **Bias Blue**
 - This item adjusts black level to control blue color between -100 ~ 100 .
 - # Only available in USER1/2/3 mode.
- **Color Copy**
 - This item is used to copy pre-stored color temperature settings into a USER1/2/3 mode.
 - In USER mode, find and select the color temperature to be used as a starting point of custom color temperature.
 - # Only available in USER1/2/3 mode.

5. Menu Operations

[4] Display/Remote



● Scan

- Used to change the Scan mode. Scroll up and down the Knob and the mode will be changed as the following sequence.
- [Zero Scan] -> [Over Scan] -> [Pixel-To-Pixel] -> [User Aspect]
- # [USER ASPECT]: User can control the aspect ratio by adjusting width and height of the display.
- * See section "6. Other Functions [2] User Aspect" on page 19 for more information.

● Aspect

- Used to change Aspect Ratio.
- Regardless of the original Aspect ratio of the Input Signal, the Aspect Modes are changed as follow sequence. : [16:9][4:3][2.35:1][1.85:1][15:9][16:10][Auto]
- # [Auto] mode enables the Aspect Ratio of the output signal to be synchronized to the original Aspect Ratio of the input signal.

● H/V Delay

- Used to monitor the Blanking area for H sync and V sync.

● Blue Only

- Used to switch in the order of [Off]-[Blue Only]- [Mono]-[Off].
- Press the button to remove red and green components from the input signal and display blue component only.
- Press the button again to switch to mono-chrome mode which has no chroma signal.

● User Aspect Horizontal/User Aspect Vertical

- Activated only when [SCAN] mode is set to [User Aspect].
- User can adjust the Horizontal and Vertical size of the screen.
- * See section "6. Other Functions [2] User Aspect" on page 19 for more information.

● Monitor ID

- Sets the ID of each monitor for the TV Logic control protocol using RS-422/485 communication.

● RS422 baud rate

- The items sets the monitor control program that TVLogic provides and Baud rate.

5. Menu Operations

[5] System Part (1/2)



● System Default

- Used to initialize OSD values to factory default.

● OSD Position

- This item controls the OSD position.
- Available values are CENTER, R-T, R-B, L-B and L-T.

● Back Light

- This item controls the backlight level of the LCD panel.

● Firmware Version

- This item is the firmware version of the system.

6. Other Functions

[1] Video Input



- LHM monitor is capable of processing all input signals usable in ANALOG mode.

1. Press [Menu] button on the back of the monitor for more than 2 seconds and OSD menu is activated as follows. Select the desired input by using the [UP]/[DOWN] button and press the [ENTER] button to confirm.
2. Input signal information is displayed at the bottom of OSD menu.
3. Press [Menu] button again to remove the OSD menu from display.

If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

6. Other Functions

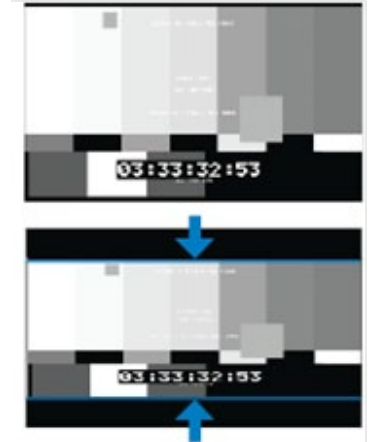
[2] User Aspect



- User can change the aspect ratio of display by using the User Aspect feature.
- Press the [SCAN] button to activate the OSD menu as shown above.
- Press the [ENTER] button to move between Width and Height.



- Adjust the ratio using the Knob.
- Control range for width :
Min[100] ~ Max[1920]
- Control range for height :
Min[100] ~ Max[1080]
- The size-adjusted picture always stay in the center of the screen.



Adjusted image always displays in the center of the screen.
Example) If user wishes to change 16:9 aspect ratio image to 2.35:1 aspect ratio, change 1920x1080 resolution to 1920 x 817 by adjusting width and height of the image in USER ASPECT mode.

7. DVI / HDMI Support Resolution

DVI ANALOG/DVI DIGITAL/HDMI SUPPORT RESOLUTION

DVI-ANALOG mode support resolution:

Resolution	Frequency
640 X 480	60Hz, 75Hz
720 X 400	70Hz
800 X 600	60Hz, 72Hz, 75Hz
1024 X 768	60Hz, 70Hz, 75Hz
1366 X 768	60Hz / 75Hz
1280 X 1024	60Hz / 75Hz
1600 X 1200	60Hz
1920 X 1080	60Hz

DVI DIGITAL/HDMI Graphic mode support resolution:

Resolution	Frequency
640 X 480	60Hz, 75Hz
800 X 600	60Hz, 72Hz, 75Hz
1024 X 768	60Hz, 70Hz, 75Hz
1366 X 768	60Hz / 75Hz
1280 X 1024	60Hz / 75Hz
1600 X 1200	60Hz
1920 X 1080	60Hz

DVI DIGITAL/HDMI Video mode supports the following input signals:

SMPTE-274M	1080i (60 / 59.94)
SMPTE-296M	720p (60 / 59.94)
SMPTE-125M	480i (59.94), 480p (59.94)

DVI DIGITAL/HDMI mode is separated into Graphic mode and Video mode.

In DVI ANALOG/DIGITAL/HDMI mode, ZERO scan must be selected for normal function.

If the input image is in non-wide mode, press ASPECT button to change to wide display.

8. Product Specifications

		LHM-420A	LHM-460A	LHM-550A
LCD	Size	42.02"	46"	54.6"
	Resolution	1920 x 1080 (16:9)	1920 x 1080 (16:9)	1920 x 1080 (16:9)
	Dot Pitch (mm)	0.4845(H) x 0.4845(V)	0.5302(H) x 0.5302(V)	0.63(H) x 0.63(V) mm
	Color	1.073G (True 10bit)	1.073G (8bit+FRC)	1.073G (8bit+FRC)
	Viewing Angle (Typical)	H : 178 degrees V : 178 degrees	H : 178 degrees V : 178 degrees	H : 178 degrees V : 178 degrees
	Luminance of white	450 cd/m ² (Center)	450 cd/m ²	450 cd/m ²
	Contrast	4000:1	4000:1	4000:1
	Display Area(mm)	930.24(H) x 523.26(V)	1018.08(H) x 572.67(V)	1209.6(H) x 680.4(V)
Input Connector	1 x BNC	SDI IN		
	1 x HDMI	HDMI IN		
	1 x DVI	DVI IN		
	1 x D-Sub	RGBHV(VGA) IN		
	1 x 9pin D-Sub	RS-232 port		
	2 x RJ45(RS422)	RS422 IN/OUT		
Input Signal	HD-SDI	1.485Gbps		
	SD-SDI	270Mbps		
	HDMI	480i/480p/720p/1080i & VESA/IBM Modes		
	DVI	VESA/IBM Modes		
SDI Input Signal Formats	SMPTE-274M	1080i (60/59.94/50)		
		1080p (30/29.97/25/24/24sF/23.98/23.98sF)		
	SMPTE-296M	720p (60/59.94/50)		
	SMPTE-260M	1035i (60/59.94)		
	SMPTE-125M	480i (59.94)		
	ITU-R BT.656	576i (50)		
LCD Control		5 Key (Menu/Src, Up, Down, Enter, Power)		
		IR Remote controller (NEC Protocol)		
		RS-422		
Power		AC 100~240V(50~60Hz)		
Power Consumption (Approx.)		120 Watts(Max.)	115 watts(Max.)	135 watts(Max.)
Operating Temperature		0°C to 40 °C (32°F to 104 °F)		
Storage Temperature		-20 °C to 60 °C (-4 °F to 140 °F)		
Main Body Dimensions (mm/inch)		985x 577.9 x 96.4 (38.78 x 22.75 x 7.8)	1070.6 x 625.5 x 100.6 (42.15 x 24.62 x 3.96)	1262.4 x 733.2 x 95.5 (49.7 x 28.9 x 3.8)
Main Body Dimensions with stand (mm/inch)		985x 632 x 255 (38.78 x 24.9 x 10)	1070.6 x 680 x 255 (42.15 x 26.77 x 10)	1262.4 x 786.4 x 255 (49.7 x 28.9 x 10)
Weight		30Kg / 66.13lb	33Kg / 72.75lb	42Kg / 92.59 lb
Basic Accessories		AC Power cord, Manual, Remote controller		
Option		Carrying Case		

* The specification above may be changed without notice.



ND Glass Filter 17" 24"



External Acrylic Filter 5.9" 7" 8"



Rack Mountable Kit 7" 8.4" 9" 15" 17" 24"



Tripod Head 5.9" 7" 8.4" 9"



V-Mount 15.5" 17" 19.4"



Hood 5.9" 7" 8" 15.5" 17"



Carrying Case 5.9" 7" 8.4" 9" 15" 17" 21" 24" 25" 40" 45" 55"

RACK MOUNT ANY DISPLAY UP TO 24"



7 inch



8.4 inch



9 inch



15 inch



17 inch



21 inch



24 inch

TVlogic Always **ON-AIR**

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