User Guide

V196bz

V203hz

V223hz

First Edition (February 2015)

Document Part Number: 808960-001

TABLE OF CONTENT

FOR YOUR SAFETY

Before operating the monitor, please read this manual thoroughly. This manual should be retained for future reference.

Waste Electrical and Electronic Equipment-WEEE

Disposal of Waste Equipment by Users in Private Household in the European Union.
This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office your household waste disposal service or the shop where you purchased the product.

For V203hz/V223hz

TCO DEVELOPMENT

Congratulations!

This product is TCO Certified - for Sustainable IT.

TCO Certified is an international third party sustainability certification for IT products. TCO Certified ensures that the manufacture, use and recycling of IT products reflect environmental, social and economic responsibility. Every TCO Certified product model is verified by an accredited independent test laboratory.

This product has been verified to meet all the criteria in TCO Certified, including:

Corporate Social Responsibility
Socially responsible production - working conditions and labor law in manufacturing country

Energy Efficiency
Energy efficiency of product and power supply. Energy Star compliant, where applicable

Environmental Management System
Manufacturer must be certified according to either ISO 14001 or EMAS

Minimization of Hazardous Substances
Limits on cadmium, mercury, lead & hexavalent chromium including requirements for mercury-free products, halogenated substances and hazardous flame retardants

Design for Recycling
Coding of plastics for easy recycling. Limit on the number of different plastics used.

Product Lifetime, Product Take Back
Minimum one-year product warranty. Minimum three-year availability of spare parts. Product takeback

Packaging
Limits on hazardous substances in product packaging. Packaging prepared for recycling

Ergonomic, User-centered design
Visual ergonomics in products with a display. Adjustability for user comfort (displays, headsets) Acoustic performance – protection against sound spikes (headsets) and fan noise (projectors, computers) Ergonomically designed keyboard (notebooks)

Electrical Safety, minimal electro-magnetic Emissions
Third Party Testing
All certified product models have been tested in an independent, accredited laboratory.

A detailed criteria set is available for download at www.tcodevelopment.com, where you can also find a searchable database of all TCO Certified IT products.

TCO Development, the organization behind TCO Certified, has been an international driver in the field of Sustainable IT for 20 years. Criteria in TCO Certified are developed in collaboration with scientists, experts, users and manufacturers. Organizations around the world rely on TCO Certified as a tool to help them reach their sustainable IT goals. We are owned by TCO, a non-profit organization representing office workers. TCO Development is headquartered in Stockholm, Sweden, with regional presence in North America and Asia.

For more information, please visit
www.tcodevelopment.com

NOTICE:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

3. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modification to this equipment. It is the responsibilities of the user to correct such interference.

⚠WARNING:

To prevent fire or shock hazard, do not expose the monitor to rain or moisture. Dangerously high voltages are present inside the monitor. Do not open the cabinet. Refer servicing to qualified personnel only.

PRECAUTIONS

- Do not use the monitor near water, e.g. near a bathtub, washbowl, kitchen sink, laundry tub, swimming pool or in a wet basement.

- Do not place the monitor on an unstable cart, stand, or table. If the monitor falls, it can injure a person and cause serious damage to the appliance. Use only a cart or stand recommended by the manufacturer or sold with the monitor. If you mount the monitor on a wall or shelf, use a mounting kit approved by the manufacturer and follow the kit instructions.

- Slots and openings in the back and bottom of the cabinet are provided for ventilation. To ensure reliable operation of the monitor and to protect it from overheating, be sure these openings are not blocked or covered. Do not place the monitor on a bed, sofa, rug, or similar surface. Do not place the monitor near or over a radiator or heat register. Do not place the monitor in a bookcase or cabinet unless proper ventilation is provided.

- The monitor should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.

- The monitor is equipped with a three-pronged grounded plug, a plug with a third (grounding) pin. This plug will fit only into a grounded power outlet as a safety feature. If your outlet does not accommodate the three-wire plug, have an electrician install the correct outlet, or use an adapter to ground the appliance safely. Do not defeat the safety purpose of the grounded plug.

- Unplug the unit during a lightening storm or when it will not be used for long periods of time. This will protect the monitor from damage due to power surges.

- Do not overload power strips and extension cords. Overloading can result in fire or electric shock.

- Never push any object into the slot on the monitor cabinet. It could short circuit parts causing a fire or electric shock. Never spill liquids on the monitor.

- Do not attempt to service the monitor by yourself; opening or removing covers can expose you to dangerous voltages and other hazards. Please refer all servicing to qualified service personnel.

- To ensure satisfactory operation, use the monitor only with UL listed computers which have appropriate configured receptacles marked between 100 - 240V AC, Min. 5A.

- The wall socket should be installed near the equipment and shall be easily accessible.

SPECIAL NOTES ON LCD MONITORS

The following symptoms are normal with LCD monitors and do not indicate a problem.

- You may find slightly uneven brightness on the screen depending on the desktop pattern you use.
- The LCD screen has effective pixels of 99.99% or more. It may include blemishes of 0.01% or less such as a missing pixel or a pixel lit all of the time.
- Due to the nature of the LCD screen, an afterimage of the previous screen may remain after switching the image when the same image has been displayed for a long time. The monitor will slowly recover from this.
- When the screen becomes black or flashing, or cannot illuminate any more, contact your dealer or service center to replace parts. Do not repair the screen by yourself!

BEFORE YOU OPERATE THE MONITOR

FEATURES

- V196bz: 47.0cm (18.5") TFT Color LCD Monitor
  V203hz: 49.4cm (19.45") TFT Color LCD Monitor
  V223hz: 54.6cm (21.5") TFT Color LCD Monitor

- Crisp, Clear Display for Windows

- Recommend Resolutions:
  V196bz: 1366 x 768@60Hz
  V203hz: 1600 x 900@60Hz
  V223hz: 1920 x 1080@60Hz

- Ergonomic Design (V203hz/V223hz)

PACKING LIST

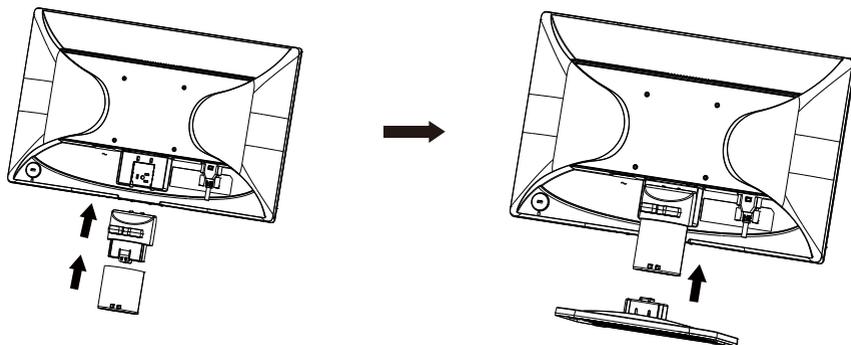The product package should include the following items:

1. LCD Monitor
2. Quick Setup Guide
3. Power Cord
4. VGA Cable
5. DVI Cable (Optional)
6. DP Cable (Optional)

For safety and regulatory information, refer to the Product Notices document provided with your monitor.

INSTALLATION INSTRUCTIONS

Attach base:

V196bz

V203hz/V223hz
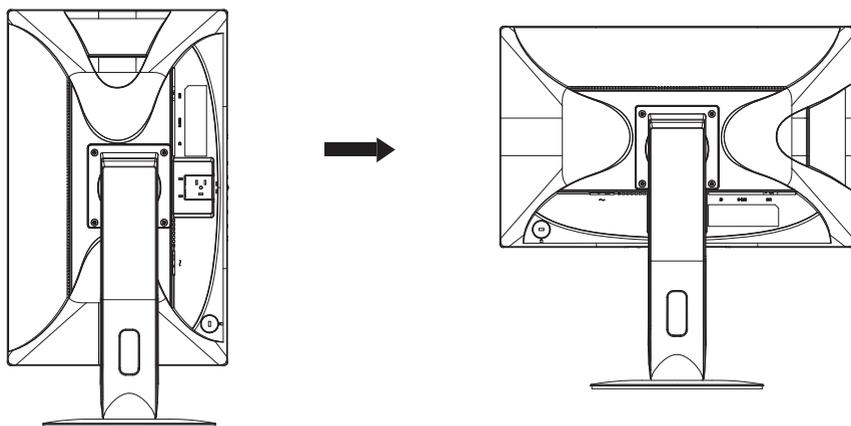
POWER CORD

Power Source:

1. Please ensure you are using the correct power cord in your area.
2. This LCD monitor has an external universal power supply that allows operation in either 100/120V AC or 220/240V AC voltage area (No user adjustment is required.)
3. Connect the AC-power cord into your LCD monitor's power input socket. The AC-power cord may be connected to either a wall power outlet or the power outlet socket on your PC, depending on the type of power cord supplied with your LCD monitor.

CONTROLS AND CONNECTORS

SIGNAL CABLE

- AC Power Connector Connects the AC power cord to the monitor.
- DisplayPort Connects the DisplayPort cable to the monitor.
- VGA Connects the VGA cable to the monitor.
- DVI-D Connects the DVI-D cable to the monitor

V196bz

1.	Power input
2.	VGA Signal input
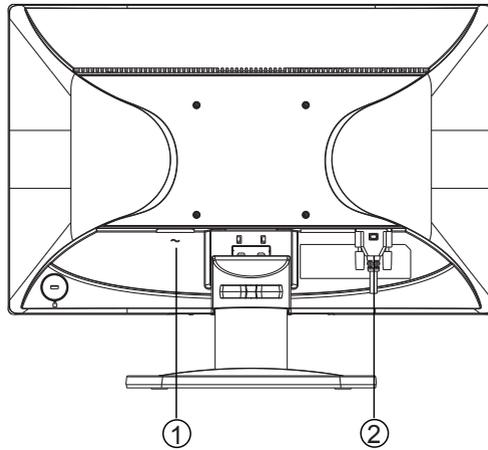
V203hz

1.	Power input
3.	VGA Signal input
2.	DVI Signal input
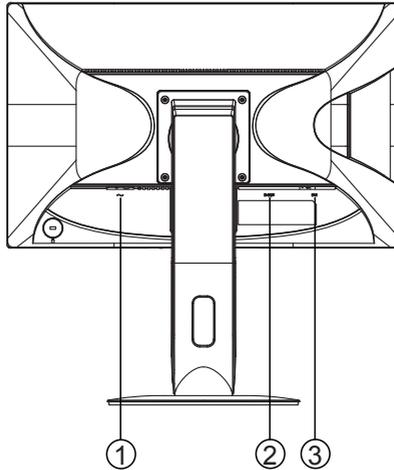
V223hz

1.	Power input
2.	DP Signal input
3.	VGA Signal input
4.	DVI Signal input
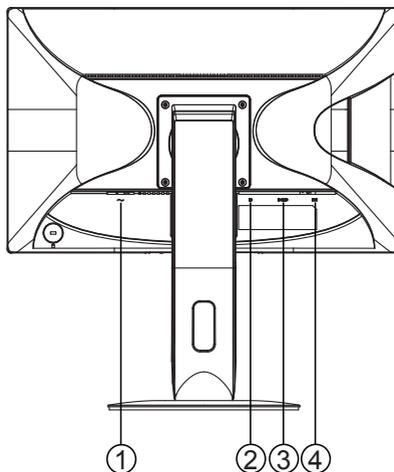
ADJUSTING THE VIEWING ANGLE

1. For optimal viewing, it is recommended to look at the full face of the monitor, then adjust the monitor's angle to your own preference.
2. Hold the stand so you do not topple the monitor when you adjust the monitor's angle.
3. You can adjust the tilted angle from 0° to 90°.
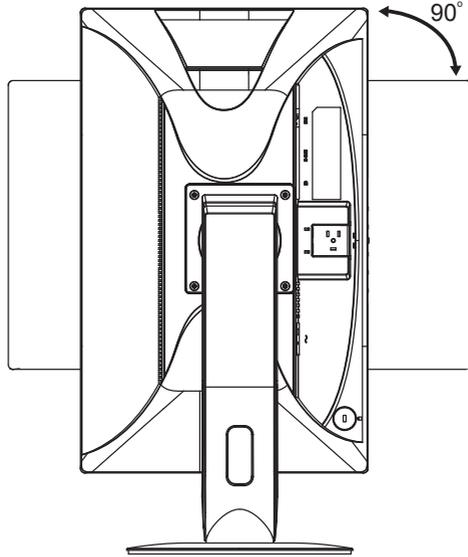
NOTES

- Do not touch the LCD screen when you adjust the angle. It may cause damage or break the LCD screen.
- Careful attention is required not to catch your fingers or hands when you adjust the angle.

OPERATING INSTRUCTIONS

GENERAL INSTRUCTIONS

Press the power button to turn the monitor on or off. The control buttons are located on the front the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

1. The power cord should be connected.
2. Connect the video cable from the monitor to the video card.
3. Press the power button to turn on the monitor. The power indicator will light up.
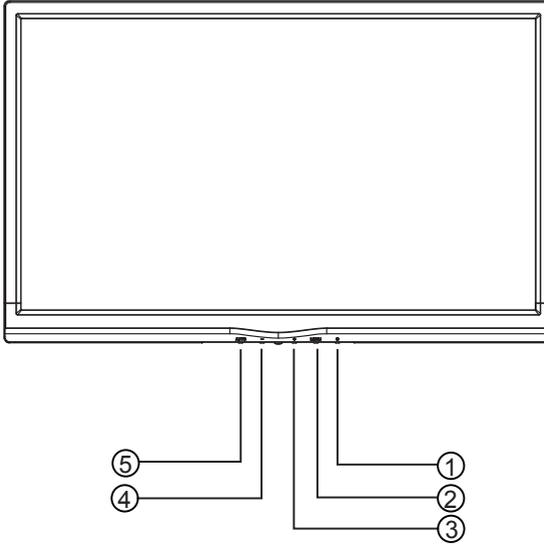
FRONT CONTROLS

1.	Power button
2.	MENU / ENTER
3.	+ / Image Ratio
4.	- / ECO
5.	Auto Config. button / Exit

FRONT PANEL CONTROL

- **Power Button:**

  Press to switch the monitor on or off.

- **Power Indicator:**

  Blue — Power On mode.

  Orange — Standby mode.

  LED off — Off mode.

- **MENU / ENTER:**

  Activate OSD menu or function adjust confirm or Exit OSD menu when in Brightness/Contrast OSD status.

- **+ / Image Ratio:**

  Activate the Image Ratio control when the OSD is OFF, navigate through adjustment icons when OSD is ON, or adjust a function when function is activated.

- **- / ECO:**

  Activate the ECO function when the OSD is OFF, navigate through adjustment icons when OSD is ON, or adjust a function when function is activated.

- **Auto Config. button / Exit:**
  1. When OSD menu is off, press and hold to activate the Auto Adjustment function (only for VGA source).
     The Auto Adjustment function is used to optimize the H.Pos, V.Pos, Clock and Focus.
  2. When OSD menu is on, press to exit the OSD menu.

OSD Lock Function: To lock the OSD, press and hold the MENU button while the monitor is off and then press power button to turn the monitor on. To un-lock the OSD, press and hold the MENU button while the monitor is off and then press power button to turn the monitor on.

NOTES

- Do not install the monitor in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, or excessive dust or mechanical vibration or shock.
- Save the original shipping carton and packing materials, as they will come in handy if you ever have to ship your monitor.
- For maximum protection, repackage your monitor as it was originally packed at the factory.
- To keep the monitor looking new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents such as thinner, benzene, or abrasive cleaners, since these will damage the cabinet. As a safety precaution, always unplug the monitor before cleaning it.
- Do not scratch the screen with hard things, it may cause permanent damage.
- Do not leak liquid into monitor which will result in the damage of component.

HOW TO ADJUST A SETTING

1. Press the MENU-button to display the OSD menu.
2. Press + or - to navigate through the menu items. Once the desired item is highlighted, press the MENU-button to enter. Press + or - again to navigate through the sub-menu. Once the desired item is highlighted, press MENU-button to activate it.
3. Press + or - to adjust the setting.
4. To exit and save, press the EXIT-button. If you would like to adjust other settings, please repeat steps 2-3.

	Luminance	
	Contrast	50
	Brightness	90
	Eco Mode	Standard

AUTO:Exit   ⊖⊕:Move   MENU:Select
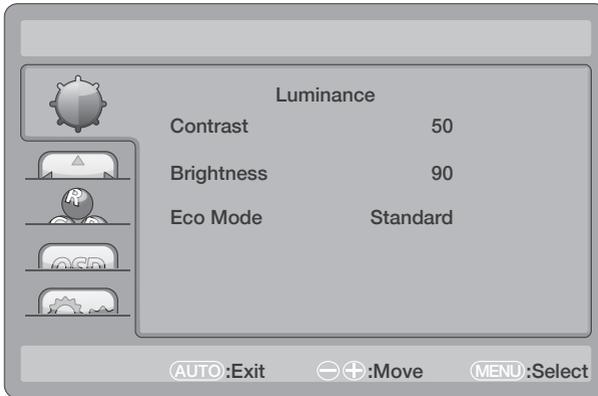
ADJUSTING THE PICTURE

The descriptions for function control:

Main Menu Item	Main Menu Icon	Sub Menu Item	Sub Menu	Description
Luminance		Contrast*		Contrast adjustment
		Brightness*		Brightness adjustment
		Eco	Standard	Standard Mode
			Text	Text Mode
			Internet	Internet Mode
			Game	Game Mode
			Movie	Movie Mode
			Sports	Sports Mode
Image Setup		Clock		Adjust picture Clock to reduce Vertical-Line noise.
		Phase		Adjust Picture Phase to reduce Horizontal-Line noise
		H.Position		Adjust the vertical position of the picture.
		V.Position		Adjust the horizontal position of the picture.
		Image Ratio**	Wide/4:3	Select Picture wide and 4:3
Color Temp.		Warm		Recall Warm Color Temperature from EEPROM.
		Normal		Recall Normal Color Temperature from EEPROM.
		Cool		Recall Cool Color Temperature from EEPROM.
		User	Red	Red gain adjustment
			Green	Green gain adjustment
			Blue	Blue gain adjustment
		sRGB		Recall SRGB Color Temperature from EEPROM.
OSD Setup		H.Position		Adjust the horizontal position of OSD
		V.Position		Adjust the vertical position of OSD
		Timeout		Adjust the OSD Timeout
		Language		Select the OSD language
Extra		DDC/CI		Turn ON/OFF DDC/CI Support
		Reset	yes or no	Reset the menu to default.
		Information		Show the information of the main image source.

* Contrast / Brightness only can be adjusted under Standard Mode.

** Image Ratio function will be greyed out if not available for a resolution.

PLUG AND PLAY

Plug & Play DDC2B Feature

This monitor is equipped with VESA DDC2B capabilities according to the VESA DDC STANDARD. It allows the monitor to inform the host system of its identity and, depending on the level of DDC used, communicate additional information about its display capabilities.

The DDC2B is a bidirectional data channel based on the I²C protocol. The host can request EDID information over the DDC2B channel.

THIS MONITOR WILL APPEAR TO BE NON-FUNCTIONAL IF THERE IS NO VIDEO INPUT SIGNAL. IN ORDER FOR THIS MONITOR TO OPERATE PROPERLY, THERE MUST BE A VIDEO INPUT SIGNAL.

This monitor meets the Green monitor standards as set by the Video Electronics Standards Association (VESA) and The Swedish Confederation Employees. This feature is designed to conserve electrical energy by reducing power consumption when there is no video-input signal present. When there is no video input signal this monitor, following a time-out period, will automatically switch to an Standby mode. This reduces the monitor's internal power supply consumption. After the video input signal is restored, full power is restored and the display is automatically redrawn. The appearance is similar to a "Screen Saver" feature except the display is completely off. The display is restored by pressing a key on the keyboard, or clicking the mouse.

TECHNICAL SUPPORT (FAQ)

Problem & Question	Possible Solution
Power LED is not on	• Check if the Power Switch is in the ON position. • Power Cord should be connected.
No Plug & Play	• Check if the PC system is Plug & Play compatible. • Check if the Video Card is Plug & Play compatible. • Check if the D-15 plug pin of Video Cable is bent.
Picture is fuzzy	• Adjust the Contrast and Brightness Controls.
Picture bounces or a wave pattern is present in the picture	• Move electrical devices that may cause electrical interference.
The power LED is ON (orange) but there is no video or no picture.	• Computer Power Switch should be in the ON position. • Computer Video Card should be snugly seated in its slot. • Make sure monitor's video cable is properly connected to the computer. • Inspect monitor's video cable and make sure none of the pins are bent. • Make sure computer is operational by pressing the CAPS LOCK key on the keyboard while observing the CAPS LOCK LED. The LED should either turn ON or OFF after pressing the CAPS LOCK key.
Missing one of the primary colors (RED, GREEN, or BLUE)	• Inspect the monitor's video cable and make sure that none of the pins are bent.
Screen image is not centered or sized properly.	• Adjust pixel frequency (CLOCK) and PHASE or press hot-key (AUTO).
Picture has color defects (white does not look white)	• Adjust RGB color or select color temperature.
Poor brightness or contrast	• When the brightness of the screen lowers after being used for a certain period and the function of the display is affected, send it to our authorized service center for repair.
Horizontal or vertical disturbances on the screen	• Adjust CLOCK and PHASE or perform hot- key (AUTO-key).

CLOCK (pixel frequency) controls the number of pixels scanned by one horizontal sweep. If the frequency is not correct, the screen shows vertical stripes and the picture does not have correct width.

PHASE adjusts the phase of the pixel clock signal. With a wrong phase adjustment the picture has horizontal disturbances in light picture.

For PHASE and CLOCK adjustment best to use "dot-pattern".

ERROR MESSAGE AND POSSIBLE SOLUTION

NO SIGNAL

1. Check that the signal-cable is properly connected. If the connector is loose, tighten the connector's screws.
2. Check the signal-cable's connection pins for damage.

INPUT NOT SUPPORTED

Your computer has been set to unsuitable display mode. Set the computer to display mode given in the table below.

FACTORY PRESET TIMING TABLE

V196bz

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY (KHz)	VERTICAL FREQUENCY (Hz)
VGA	640 x 480@60Hz	31.469	59.94
	720 x 400@70Hz	31.469	70.087
VESA	800 x 600@60Hz	37.879	60.317
	1024 x 768@60Hz	48.363	60.004
	1280 x 1024@60Hz	63.98	60.02
	1366x768@60Hz	48	60
VESA/CEA-861D	1280 x 720@60Hz	45	60
CVT	1280 x 800@60Hz	49.702	59.81

V203hz

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY (KHz)	VERTICAL FREQUENCY (Hz)
DMT	640 x 480@60Hz	31.469	59.94
	800 x 600@60Hz	37.879	60.317
	1024 x 768@60Hz	48.363	60.004
VGA	720 x 400@70Hz	31.469	70.087
CEA-861	1280 x 720@60Hz	45	60
CVT	1280 x 800@60Hz	49.702	59.81
	1280 x 1024@60Hz	63.981	60.02
CVT1.30M9-R	1440 x 900@60Hz	55.935	59.887
	1600 x 900@60Hz	60	60

V223hz

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY (KHz)	VERTICAL FREQUENCY (Hz)
DMT	640 x 480@60Hz	31.469	59.94
	800 x 600@60Hz	37.879	60.317
	1024 x 768@60Hz	48.363	60.004
VGA	720 x 400@70Hz	31.469	70.087
CEA-861	1280 x 720@60Hz	45	60
	1920 x 1080@60Hz	67.5	60
CVT	1280 x 800@60Hz	49.702	59.81
	1280 x 1024@60Hz	63.981	60.02
CVT1.30M9-R	1440 x 900@60Hz	55.935	59.887
	1600 x 900@60Hz	60	60
CVT1.76MA	1680 x 1050@60Hz	65.29	59.954

APPENDIX

SPECIFICATIONS

Model Name	V196bz	V203hz	V223hz
Display Size (Diagonal)	18.5 in	19.45 in	21.5 in
Display Panel Type	TN w/LED backlight	TN w/LED backlight	TN w/LED backlight
Native Resolution	1366 x 768@60Hz	1600 x 900@60Hz	1920 x1080@60Hz
Aspect Ratio	16:9	16:9	16:9
Panel Brightness (Typ)	200	250	250
Static Contrast Ratio	600:1	1000:1	1000:1
Dynamic Contrast Ratio (DCR)	5,000,000:1	5,000,000:1	5,000,000:1
Response Time	5ms(on/off)	5ms(on/off)	5ms(on/off)
Color Gamut	72%	72%	72%
Color Support	16.7 M	16.7 M	16.7 M
Horizontal Viewing Angle	90	170	170
Vertical Viewing Angle	65	160	160
Panel Active Area	409.8 × 230.4mm	432.0 x 239.76 mm	476.64 x 268.11 mm
Maximum Resolution	1366 x 768@60Hz	1600 x 900@60Hz	1920 x1080@60Hz
Recommended Resolution	1366 x 768@60Hz	1600 x 900@60Hz	1920 x1080@60Hz
Vertical Scan Range	50Hz~60Hz	50Hz~60Hz	50Hz~60Hz
Horizontal Scan Range	30KHz~83KHz	30KHz~83KHz	30KHz~83KHz
Default Color Temperature	6500	6500	6500
Maximum Pixel Clock Speed	110MHz	140MHz	170MHz
MONITOR SPECIFICATIONS			
Exterior Color of Monitor	Black	Black	Black
Plug & Play	Yes	Yes	Yes
Tilt	-4°(±2)~+18°(±2)	-4±2 , 20~23	-4±2 , 20~23
Swivel	NA	130	130
Pivot	NA	0~90	0~90
Height Adjustment	NA	YES	YES
Height Adjustment Range	NA	110MM	110MM
INPUT CONNECTOR TYPES			
VGA	Yes	Yes	Yes
DVI-D	No	Yes	Yes
DisplayPort 1.2	N0	N0	Yes
POWER AND OPERATING SPECS			
Power Source	100-240V~,50/60Hz	100-240V~,50/60Hz	100-240V~,50/60Hz

| On Mode	≤15W	≤20W	≤33W
Standby Mode	≤0.5W	≤0.5W	≤0.5W
Off Mode	≤0.5W	≤0.5W	≤0.5W
OPERATING CONDITIONS			
Operating Temperature	5oC - 35oC	5oC - 35oC	5oC - 35oC
Operating Temperature	41 to 95°F	41 to 95°F	41 to 95°F
Operating Humidity	15% - 90%	15% - 90%	15% - 90%
Non-operating Humidity	5% - 90%	5% - 90%	5% - 90%
Operating Altitude	0 - 5,000 m (16,400 ft.)	0 - 5,000 m (16,400 ft.)	0 - 5,000 m (16,400 ft.)
Non-operating Altitude	0 - 12.192 m (40,000 ft.)	0 - 12.192 m (40,000 ft.)	0 - 12.192 m (40,000 ft.)
Dimension and Weight			
Product Dimensions (Unpacked with stand) (mm)	445*351*189	478*250*502	510*250*519
Product Dimensions (Packed) (mm)	505*339*128	632*350*335	652*376*335
Net Weight (Unpacked with stand)	2.9kg	5.3kg	5.8kg
Gross Weight (Packed)	3.7kg	7.2kg	7.8kg

CONNECTOR PIN ASSIGNMENT

Pin Layout for PC Input Terminal:
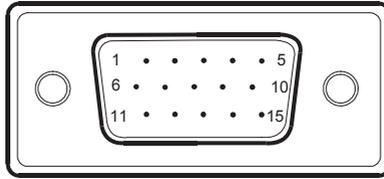
PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
1.	R	9.	+5 V DC
2.	G	10.	GND (Ground)
3.	B	11.	NC (not connected)
4.	NC (not connected)	12.	SDA
5.	GND (Ground)	13.	HD/SYNC
6.	GND (Ground)	14.	VD
7.	GND (Ground)	15.	SCL
8.	GND (Ground)		

DVI-D Input Connector Pin Layouts:
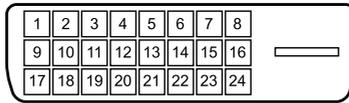
PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
1.	T.M.D.S. Data2 −	13.	—
2.	T.M.D.S. Data2 +	14.	+5 V DC
3.	T.M.D.S. Data2 Shield	15.	Ground
4.	—	16.	Hot Plug Detect
5.	—	17.	T.M.D.S. Data0 −
6.	DDC Clock	18.	T.M.D.S. Data0 +
7.	DDC Data	19.	T.M.D.S. Data0 Shield
8.	—	20.	—
9.	T.M.D.S. Data1 −	21.	—
10.	T.M.D.S. Data1 +	22.	T.M.D.S. Clock Shield
11.	T.M.D.S. Data1 Shield	23.	T.M.D.S. Clock +
12.	—	24.	T.M.D.S. Clock −

Note: Monitors with a native resolution of 1920x1200 or less do not require the support of the second TMDS link.

DisplayPort Input Connector Pin Layouts:
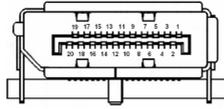
PIN NO.	SIGNAL NAME	PIN NO.	SIGNAL NAME
1.	Lane0(p)	11.	GND
2.	GND	12.	Lane3(n)
3.	Lane0(n)	13.	Config1
4.	Lane1(p)	14.	Config2
5.	GND	15.	AUX_CH (n)
6.	Lane1(n)	16.	GND
7.	Lane2(p)	17.	AUX_CH (p)
8.	GND	18.	Hot Plug Detect
9.	Lane2(n)	19.	DP Power_Return
10.	Lane3(p)	20.	DP Power