



High Performance LCD Monitors

UML-172-90 | UML-192-90 | UML-202-90

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1 Safety

1.1 Important Safety Instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning** - Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources** - Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. **Ventilation** - Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Water** - Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
5. **Object and liquid entry** - Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
6. **Lightning** - For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and

disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.

7. **Controls adjustment** - Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
8. **Overloading** - Do not overload outlets and extension cords. This can cause fire or electrical shock.
9. **Power cord and plug protection** - Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
10. **Power disconnect** - Units with or without ON/OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect device for switching off the voltage for all units.
11. **Power sources** - Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
 - For battery powered units, refer to the operating instructions.
 - For external power supplied units, use only the recommended or approved power supplies.
 - For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.
 - For 24 VAC units, voltage applied to the unit's power input should not exceed $\pm 10\%$, or 28 VAC. User-supplied wiring must comply with local electrical

- codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
- If unsure of the type of power supply to use, contact your dealer or local power company.
12. **Servicing** - Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
 13. **Damage requiring service** - Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
 - the power supply cord or plug is damaged;
 - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
 - liquid has been spilled in or on the equipment;
 - an object has fallen into the unit;
 - unit has been dropped or the unit cabinet is damaged;
 - unit exhibits a distinct change in performance;
 - unit does not operate normally when the user correctly follows the operating instructions.
 14. **Replacement parts** - Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
 15. **Safety check** - Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
 16. **Installation** - Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
 17. **Attachments, changes or modifications** - Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or,

in the case of an authorization agreement, authority to operate the equipment.

1.2 Safety Precautions



WARNING! High risk:

This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product. If not avoided, this will result in an electrical shock, serious bodily injury, or death.



WARNING! Medium risk:

Indicates a potentially hazardous situation. If not avoided, this could result in serious bodily injury or death.

CAUTION! Medium risk:

Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury. Alerts the user to important instructions accompanying the unit.



WARNING! Low risk: (without safety alert symbol)

Indicates a potentially hazardous situation. If not avoided, this may result in property damage or risk of damage to the unit.



NOTICE!

This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.3 Important Notices



Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick

stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.

If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Coax grounding:

- Ground the cable system if connecting an outside cable system to the unit.
- Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.
- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
- Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70*, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



NOTICE!

This device is intended for use in public areas only.

U.S. federal law strictly prohibits surreptitious recording of oral communications.



Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household

waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Electrostatic-sensitive device - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge. NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Grounding and polarization - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other blade). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately, this unit may be equipped with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224 and CEC Section 60)*.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.
Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

Power disconnect - Units have power supplied whenever the power cord is inserted into the power source. The power cord is the main power disconnect for all units.

Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

SELV

All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.



NOTICE!

This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only, CLASS A)

This device complies with *part 15* of the *FCC Rules*. Operation is subject to the following conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. 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 radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

INFORMATIONS FCC ET ICES (commercial applications)

(modèles utilisés aux États-Unis et au Canada uniquement, CLASSE A)

Ce produit est conforme aux normes FCC partie 15. la mise en service est soumise aux deux conditions suivantes:

- cet appareil ne peut pas provoquer d'interférence nuisible et
- cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumis, y compris les interférences qui pourraient influencer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de Classe A en vertu de la section 15 du règlement

de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une installation commerciale. Cette appareil génère, utilise et émet de l'énergie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais.

Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : « How to Identify and Resolve Radio-TV Interference Problems » (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

AVERTISSEMENT: Ce produit est un appareil de Classe A. Son utilisation dans une zone résidentielle risque de provoquer des interférences. Le cas échéant, l'utilisateur devra prendre les mesures nécessaires pour y remédier.

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Closed Circuit Television Equipment, UL 2044*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE

PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

Disclaimer

Underwriter Laboratories Inc. (“UL”) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

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NOTICE!

This user guide has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

1.4 Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

Repair Center

Telephone: 800-566-2283

Fax: 800-366-1329

E-mail: repair@us.bosch.com

Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

E-mail: security.sales@us.bosch.com

Technical Support

Telephone: 800-326-1450

Fax: 585-223-3508 or 717-735-6560

E-mail: technical.support@us.bosch.com

Canada

Telephone: 514-738-2434

Fax: 514-738-8480

Europe, Middle East, Africa Region

Repair Center

Telephone: 31 (0) 76-5721500

Fax: 31 (0) 76-5721413

E-mail: RMADesk.STService@nl.bosch.com

Asia Region

Repair Center

Telephone: 65 63522776

Fax: 65 63521776

E-mail: rmahelpdesk@sg.bosch.com

Customer Service

Telephone: 86 (0) 756 7633117 or

86 (0) 756 7633121

Fax: 86 (0) 756 7631710

E-mail: customer.service@cn.bosch.com

Warranty and more information

For additional information and warranty queries, please contact your Bosch Security Systems representative or visit our website at www.boschsecurity.com.

2 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.

Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.

The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.

2.1 Parts List

The following table lists the parts included:

Quantity	Part
1	UML-172-90, UML-192-90, or UML-202-90 Color LCD Flat Panel Monitor
1	Installation manual
2	Power Cords, 3-wire with grounded plug 1.8 m (6 ft) long: one with a U.S plug type and one with a European Continental plug type
1	VGA to VGA (D-SUB) cable, 1.5 m (5 ft)
1	DVI-D to DVI-D cable, 1.5 m (5 ft)
1	Alarm relay cable with two flying leads
1	PC-style audio cable
1	Remote control with two (2) batteries

2.2 Exploded View

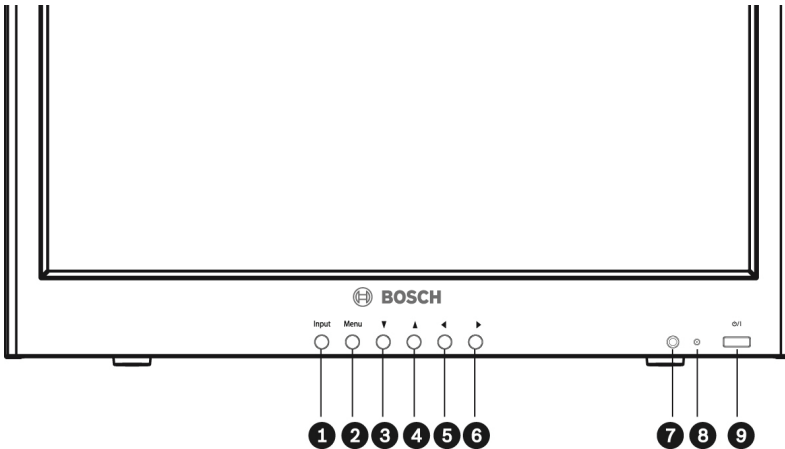


Figure 2.1 Front Panel UML-202

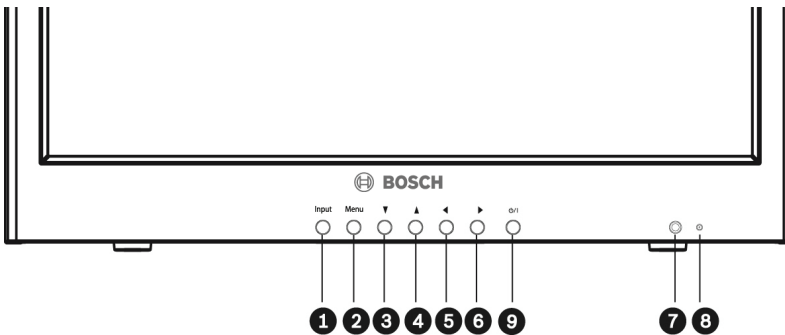


Figure 2.2 Front Panel UML-172 and UML-192

Number	Button	Description	
1	Input Button	Selects the signal to be displayed	
2	Menu Button	Selects the on-screen display (OSD)	
3	▲	Adjusts the value when in the OSD	Scrolls up in the OSD
4	▼	Adjusts the value when in the OSD or auto adjusts when in PC mode	Scrolls down in the OSD
5	◀	Decreases the value when in the OSD	Scrolls left in the OSD
6	▶	Increases the value when in the OSD	Scrolls right in the OSD
7	IR Sensor	Remote control sensor	
8	LED Indicator	Power On (green) Power Off, Standby (red)	
9	Power Button	Display Power (On/Off)	

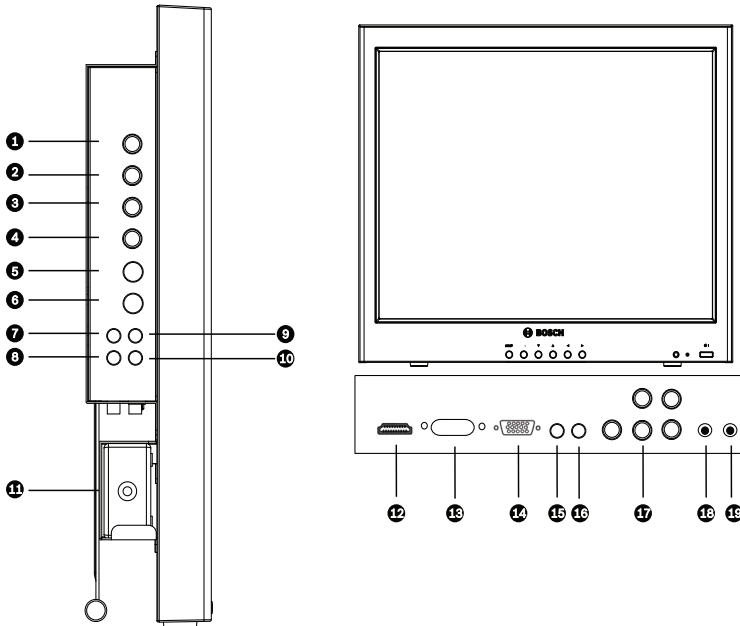


Figure 2.3 Side and Bottom Panels

Side Panel	
Number	Connector
1	Video 1 (AV1) IN
2	Video 1 (AV1) OUT
3	Video 2 (AV2) IN
4	Video 2 (AV2) OUT
5	S-Video (Y/C) IN
6	S-Video (Y/C) OUT
7	Audio IN (AV1, S-Video)
8	Audio OUT (AV1, S-Video)
9	Audio IN (AV2)
10	Audio OUT (AV2)
11	12 V Adaptor

Bottom Panel	
Number	Connector
12	HDMI IN
13	DVI IN
14	D-SUB IN
15	PC Stereo IN
16	Audio OUT
17	Component Y, Pb, Pr and Sound L, R
18	DC 12 V IN
19	Trigger Input

2.3 Remote Control

This section details the functions and the usage of the Bosch remote control.

Button	Function
POWER	Turns the power ON and OFF.
SOURCE	Selects the PC or Video source.
Numbers	Numerals 0-9.
AUTO	Auto adjusts to the graphics adaptor.
MUTE	Mutes the sound.
MENU	Displays the OSD. Pressing the Menu button returns you to the Main menu from anywhere in the OSD menus.
EXIT	Exits the OSD.
UP	Moves the cursor up in an OSD menu.
DOWN	Moves the cursor down in an OSD menu.
ENTER	Accepts your selection or displays the current mode when in the OSD menu.
◀ VOL	Moves the cursor left, decreases item values in an OSD menu, or decreases sound.
▶ VOL	Moves the cursor right, increases item values in an OSD menu, or decreases sound.
INFO	Displays the information for the settings currently selected for CVBS or PC Input.
STILL	Freezes the video by pressing the button once and releases the freeze by pushing it again.
PIP	Activates/deactivates Picture-In-Picture mode.
P. INPUT	Selects the PC or Video source for the PIP. Continuously press this button to change the selection.
P. POS	Moves the position of the sub picture for the PIP mode. Continuously press this button to change the selection.
P. SIZE	Changes the size of the sub and main picture for the PIP mode. Continuously press this button to change the selection.
SWAP	Alternates between the main and sub picture for the PIP mode. Continuously press this button to change the selection.
ARC (Aspect Ratio Control)	Selects the screen ratio when in Video mode. Continuously press this button to change the selection.
APC (Auto Picture Control)	Selects the Picture mode. Continuously press this button to change the selection.

ACC (Auto Color Control)	Selects the Color mode. Continuously press this button to change the selection.
S. SET	Selects the Sound mode main input or sub input (only available when PIP is enabled).
PC	Selects the PC mode (HDMI, DVI, PC). Continuously press this button to change the selection.
AV	Selects the AV mode (AV1, AV2, S-Video). Continuously press this button to change the selection.
COMP	Selects the COMPONENT mode.

2.4 Remote Control Battery Installation

1. Turn the remote over (buttons facing down) and push down on the cover and slide it off.
2. Insert two (2) new AAA alkaline batteries, matching the batteries to the (+) and (-) marks inside the battery case.

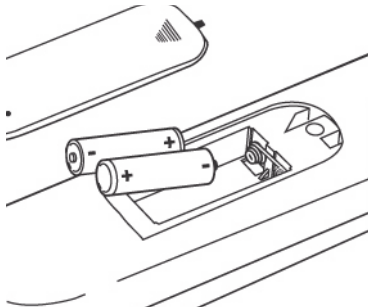


Figure 2.4 Remote Control Battery Placement

3. Slide the battery cover back into place.

Note: Replace batteries when required or at least once a year. Dispose of used batteries properly.

3 Description

The Bosch High Performance Family of LCD monitors display PAL or NTSC standard color pictures in CCTV systems. Two (2) looping Composite Video BNC connector inputs, two (2) looping Audio input RCA, and two (2) looping Y/C (S-Video) inputs using a 4-pin mini-DIN are included. In addition, each model includes an Analog VGA input using 15-pin D-sub to accommodate the increasing use of PCs and digital video devices in security applications, an HDMI (High Definition Multimedia Input), DVI, PC-RGB (VGA), RC Audio In and Out, and Component Video (Y/Pb/Pr) connectors. Monitor control functions are accessed via the front panel push buttons and On-screen Display (OSD). See *Section 2.2 Exploded View, Page 14*, for front panel descriptions.

3.1 Features

- 17-inch, 19-inch, and 20-inch models
- 90 to 256 VAC Power Supply
- NTSC/PAL Auto-Detect
- High-Resolution Display
 - 1024 x 768 (UML-172-90)
 - 1280 x 1024 (UML-192-90)
 - 1600 x 1200 (UML-202-90)
- VGA Input
- Composite Video Input
- Y/C Input (S-Video)
- On-screen Display (OSD) with Multiple Languages

3.2 Power

Model No.	Rated Voltage	Voltage Range	Power at Rated Voltage	Sync Format
UML-172-90	120/230 VAC 50/60 Hz	100 to 240 V	< 40 W	NTSC/PAL
UML-192-90	120/230 VAC 50/60 Hz	100 to 240 V	< 45 W	NTSC/PAL
UML-202-90	120/230 VAC 50/60 Hz	90 to 256 V	70 W (max)	NTSC/PAL

4 Installing the Monitor

This chapter outlines the procedures to install the UML-172-90, UML-192-90, or the UML-202-90 Series. A qualified service person should install the monitor and adhere to all local codes.

4.1 Ventilation

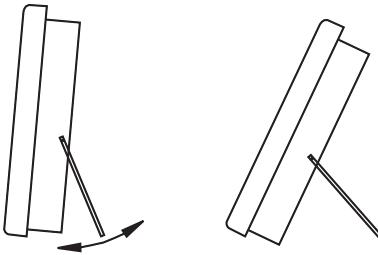
To prevent overheating, ensure that the ventilation openings on the rear of the monitor are not covered.

4.2 Mounting the Monitor

The UML-172-90, UML-192-90, and the UML-202-90 are designed for use on a desktop or mounted to a wall or rack.

4.2.1 Desktop Installation

The Bosch High Performance monitors are delivered with a 3-pole US-style power cord and a 3-pole Euro-style power cord. Use the US-style power cord where 120 VAC, 60 Hz power is available; use the Euro-style power cord where 230 VAC, 50 Hz power is available. The monitor automatically adjusts to either power input voltage. The viewing angle of the LCD can be adjusted to fit the most comfortable monitoring status.



Min Degree	Max Degree
25° 122 mm	50° 192 mm



NOTICE! For the best viewing quality and holding support, the suggested bracket angle is 25° to 50°.

4.2.2 Wall Mount Installation

The square mounting holes (100 mm [3.9 in.] centers) are compatible with the Bosch UMM-LW-20B fixed wall mount or the UMM-LW-30B swivel/tilt mount.

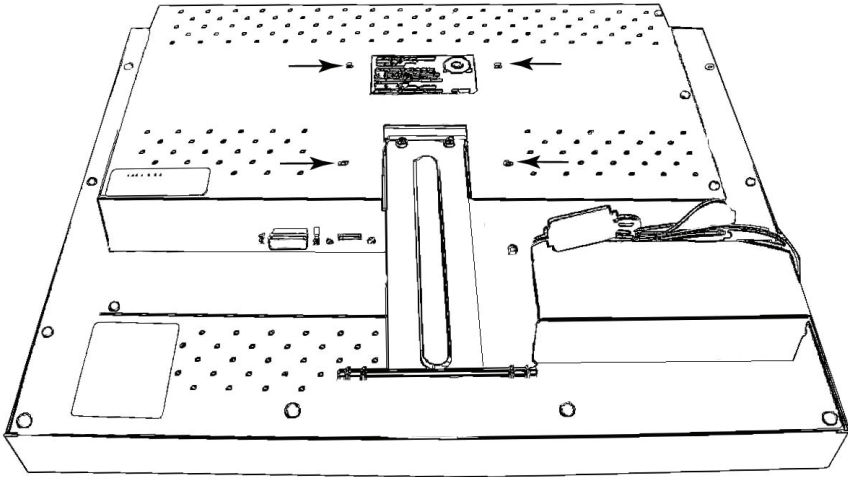


Figure 4.1 Mounting the Device

4.3 Connecting the Composite Video Signal to the Monitor

There are two (2) BNC connectors located on the rear side panel of the monitor for composite video input and two (2) BNC connectors for composite video outputs (see *Figure 2.3*).

Note: All video inputs are passive loop-through. The impedance is automatically set to 75 ohm by the input of the signal on the input connector, while operating in a single connection mode (see *Figure 4.7*). If a cable is also connected to the output connector, the video signal can be passed on to another monitor connected to it via the passive loop-through function. Up to three (3) monitors may be connected in this manner (see *Figure 4.8*).

Note: To select between AV1 and AV2, press Input (see *Figure 2.1*, Item 1 or *Figure 2.2*, Item 1) located on the front of the monitor.

4.4 Connecting the Y/C (S-Video) Signal to the Monitor

There is one (1) mini-DIN type connector for the S-Video (Y/C) input (see *Figure 4.2*) on the rear side panel.

Note: Both Y and C inputs are terminated with 75 Ω resistors.

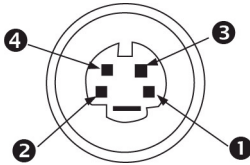


Figure 4.2 Y/C Connection Pinout

Number	Input
1	GND
2	GND
3	Y-signal IN or OUT
4	C-signal IN or OUT

4.5 Connecting Audio to the Monitor

There are two (2) sets of mono audio connectors for audio input, located at the side panel.

- All audio inputs are active loop-through.
- Audio 1 is associated with Video 1 or Y/C; Audio 2 is associated with Video 2.

Input	Audio 1	Audio 2
Video 1	X	
Video 2		X
S-video	X	

4.5.1 Connecting PC Audio

The rear bottom panel has PC stereo audio IN and audio OUT. Connect with 1/8 in. mini phono plug jack to Audio IN.

4.6 Connecting the PC Signal to the Monitor

There are three ways to connect the PC signal to the monitor; HDMI, DVI, and VGA.

4.6.1 HDMI

The monitor can be connected to the HDMI (High Definition Multimedia Input) by connecting a HDMI cable (not supplied).



Figure 4.3 HDMI Input

4.6.2 DVI

The monitor can be connected by using the supplied DVI-D cable and connecting it to the digital DVI-D signal.



Figure 4.4 DVI Input

4.6.3 VGA

The monitor can be connected by connecting the analog VGA signal by using the provided VGA cable (D-SUB to D-SUB).



Figure 4.5 VGA Input

Pin	Description	Pin	Description
1	Red Video	9	N/A
2	Green Video	10	Signal Cable Detect
3	Blue Video	11	Ground
4	Ground	12	SDA (for DDC)
5	Ground	13	H-Sync or H+V Sync
6	Red Ground	14	V-Synch
7	Green Ground	15	SCL (for DDC)
8	Blue Ground		

4.7 Connecting an Alarm Trigger

The monitor contains an alarm Trigger Input, the right-most input on the back panel, and an alarm relay cable. These components allow you to connect an alarm relay from a device, such as a camera or a door. Connect the two flying leads from the alarm relay cable into the relay out ports of the device. Then, route the other end of the cable to the Trigger Input connector on the back panel of the monitor.

The following illustration depicts a typical alarm relay configuration:

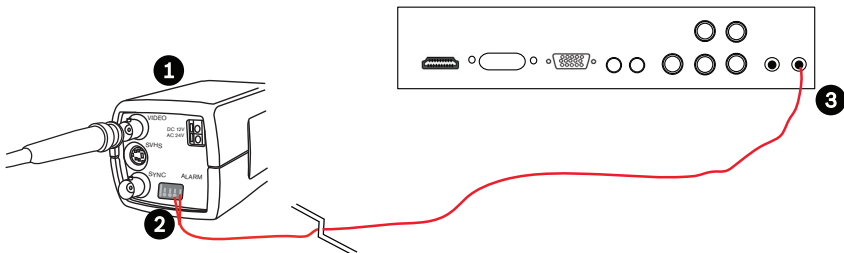


Figure 4.6 Camera to Monitor Alarm Relay

Number	Description
1	Dinion Camera
2	Flying leads connected to relay outputs 3 and 4
3	UML Back Panel

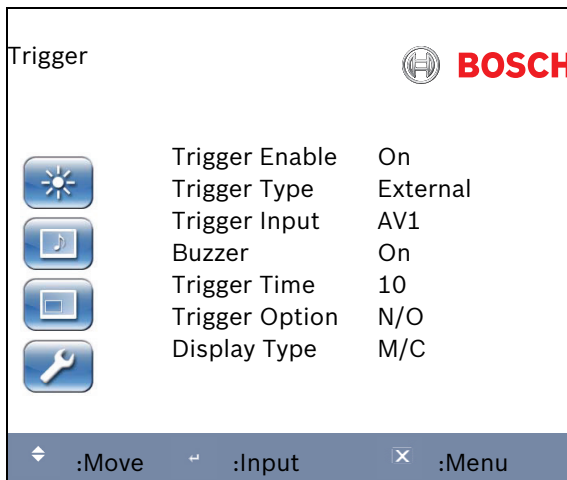
In the above example, the flying leads of the alarm relay cable are connected to relay output three and four of a Dinion camera. The cable is routed to the back panel of the UML monitor and the plug-end of the wire is connected to the Trigger Input port. See *Section 5.7.1 Configuring Alarm Relay Inputs, Page 37*, for configuring alarm acknowledgement.

Example: Typical Alarm Trigger Configuration

In this case, the Dinion camera is used to watch for motion. When the camera detects motion it sends an alarm to the UML monitor. The monitor, then, switches the input to display the video from the Dinion camera and sounds a buzzer.

1. Route the coax cable from the Dinion Video output to the AV1 input of the UML monitor.

2. Configure the following settings for the Dinion camera:
 - VMD: OSD
 - Area: 1
 - Active: On
3. Connect one flying lead to relay output three, on the back of the Dinion camera, and connect the other to relay output four.
4. Connect the other end of the Trigger Relay cable to the Trigger Input connector on the back of the monitor.
5. Plug the monitor into a power socket; then press the Power button.
6. On the monitor, access the Trigger menu:
 - a. Press the Menu button.
 - b. Press the Down Arrow button to access the Setup menu.
 - c. Press the Right Arrow button to enter the Setup menu.
 - d. Press the Down Arrow button until Trigger is highlighted; then press the Right Arrow button.
7. Make the necessary changes to the Trigger menu so that the settings match the following:



8. Press the Menu button three (3) times to exit the menu and to return to the video display.

4.8 Single / Multiple Monitor Configuration

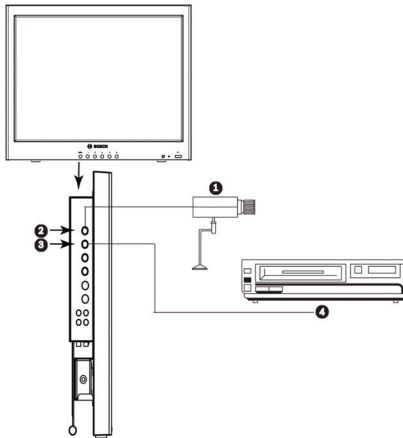


Figure 4.7 Single Monitor Configuration

Number	Description
1	Video Camera
2	VIDEO 2 (AV2) IN
3	VIDEO 2 (AV2) OUT
4	VCR

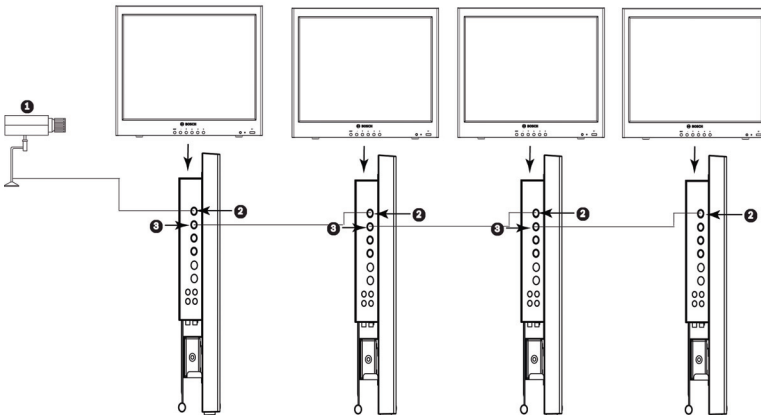


Figure 4.8 Multiple Monitor Configuration

Number	Description
1	Video Camera
2	VIDEO 2 (AV2) IN
3	VIDEO 2 (AV2) OUT

5 Navigating the Monitor

5.1 Navigating the Front Panel

Use the front panel to make any necessary OSD adjustments to the UML-172-90, UML-192-90, or to the UML-202-90. See the figure below for an explanation of the front panel.

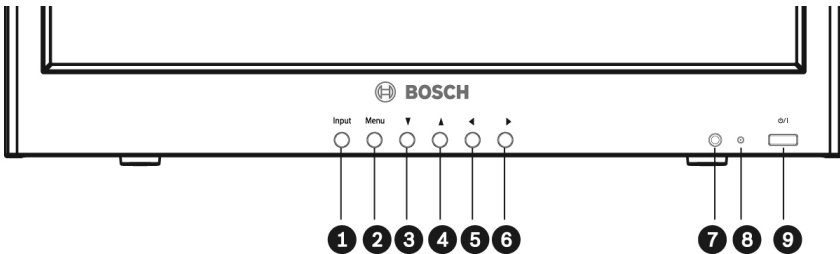


Figure 5.1 Front Panel Buttons

Number	Button	Description	
1	Input Button	Selects the signal to be displayed	
2	Menu Button	Selects the on-screen display (OSD)	
3	▲		Scrolls up in the OSD
4	▼	Performs an Autoset when connected to the VGA input, which automatically adjusts the display to match the graphics adapter.	Scrolls down in the OSD
5	◀	Decreases the value	Scrolls left in the OSD
6	▶	Increases the value	Scrolls right in the OSD
7	IR Sensor	Remote control sensor	
8	LED Indicator	Power On (green) Power Off, Standby (red)	
9	Power Button	Display Power (On/Off)	

5.2 Navigating the Monitor On-screen Display (OSD)

The UML172-90, UML-192-90, and the UML-202-90 have two (2) modes: Video and PC. The LCD is programmed through the on-screen display (OSD) menus and submenus where an operator can select operating parameters. To access the OSD menus, press the **Menu** button on the front panel or on the remote

control. Use the front panel of the monitor or respective remote control to make any necessary adjustments to the OSD.







NOTICE! When you are navigating through the OSD menus, use the **Input** button to select a menu and use the **Menu** button to exit a menu.

To navigate the set up menus, follow the steps below:

1. Connect the CVBS or VGA cable.
2. If required, press the **Input** button until a signal is displayed. NOTE: Menus are not available without a signal applied.
3. Press the **Power** button to turn on the unit (see *Figure 2.1* or *Figure 2.2*).
4. Press the **Menu** button to activate the main menu selections (see *Figure 2.1* or *Figure 2.2*).
5. Press the ▲ and ▼ buttons to select a menu.
6. Press the **Input** button to enter the selected menu.
7. Press the ◀ and ▶ buttons to select a sub-menu item.
8. Press the ▲ and ▼ buttons to toggle the OSD values.
9. Press the **Menu** button to exit the selected menu and to return to the menu bar or to confirm a selection.
10. Press the **Menu** button again to exit the OSD menu bar.

5.3 On-screen Display Menus

There are four (4) on-screen menus that allow you to customize your settings. Press the **Menu** button to access the OSD menu.

Icon	Menu	Function
	Custom	Adjusts the Brightness, Contrast, Color, Tint, and the Sharpness level for video performance of the OSD. (The menu options differ between the Video and PC modes.)
	Picture / Sound	Adjusts the Picture Mode, Color Tone, Mute, Volume, Size, and the PC settings. (The menu options differ between the Video and PC modes.)
	PIP	Adjusts the Input Source, Size, Position, Swap, and the Sound Select settings.
	Set Up	Enables user to Reset the factory default settings and to adjust the Language, OSD Tone, Blue Screen, Key Lock, Trigger, and Auto Switching settings.

5.4 Custom Menu

To access the **Custom** menu, press the **Menu** button on the front panel of the monitor. Next, press the right arrow and then press the up and down arrows to select a submenu. Press the left and right arrow buttons to increase or decrease the values. When finished, press the **Menu** button to save any changes, then press the **Menu** button again to exit the OSD.



Table 5.1 Custom Menu (Video Mode)

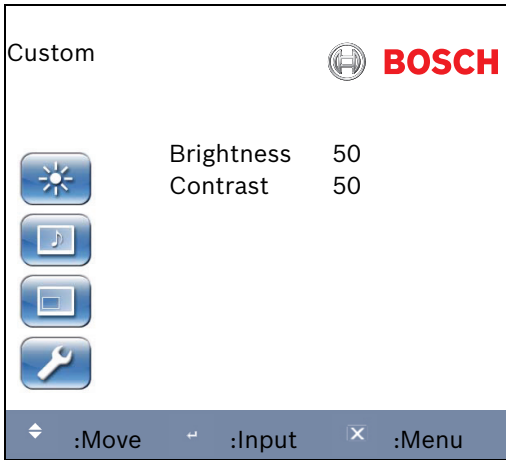


Table 5.2 Custom Menu (PC Mode)

Submenu	Definition
Brightness	Adjusts the brightness level for video performance (range 0-100).
Contrast	Adjusts the contrast level for video performance (range 0-100).
Color	Adjusts the overall intensity of the screen (range 0-100).
Tint	Adjusts the tint of the picture (range 0-100). NTSC only.
Sharpness	Adjusts the sharpness level for video performance (range 0-100).
Phase (Component only)	

5.5 Picture / Sound Menu

To access the **Picture / Sound** menu, press the **Menu** button on the front panel of the monitor, then press the left and right arrows to select the Picture / Sound icon. Press the up and down arrows to select the **Picture / Sound** submenu.

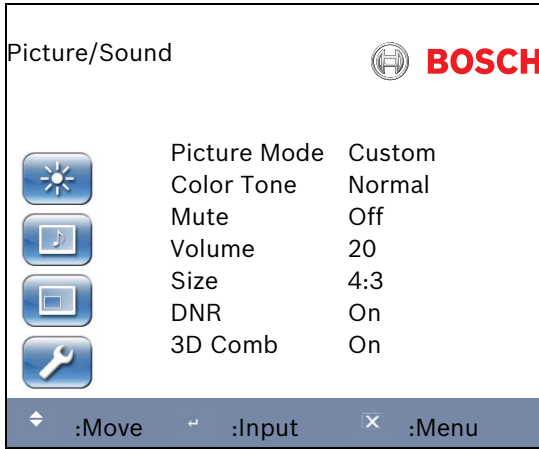


Table 5.3 Picture / Sound Menu (Video Mode)

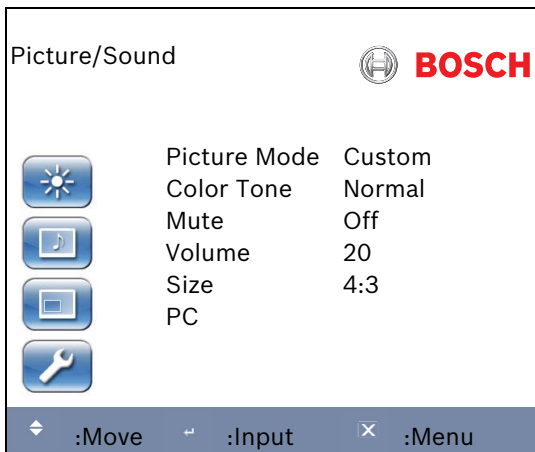


Table 5.4 Picture / Sound Menu (PC Mode)

Submenu	Definition
Picture Mode (Video Mode)	Selects the automatic picture control mode. Choices are: Custom: User selected values of the Custom menu are applied. Dynamic: Automatically adjusts the Brightness, Contrast, and Sharpness, maximizing the video quality in the picture. Standard: Applies factory default values.
Picture Mode (PC Mode)	Selects the automatic picture control mode. Choices are: Custom: User selected values of the Custom menu are applied. High: Uses the following values: Brightness = 70, Contrast = 80 Middle: Uses the following values: Brightness = 60, Contrast = 70. Low: Uses the following values: Brightness = 50, Contrast = 60.
Color Tone	Selects the color temperature. Choices are: Cool 9300K, Normal 6500K, Warm 5000K.
Mute	Enables/disables audio. Choices are: On and Off.
Volume	Controls built-in speaker output volume (range 0-100).
Size (Video Mode)	Selects the Aspect Ratio Control mode. Choices are: 4:3, Panorama, Zoom1, Zoom2, Wide.
DNR (Video Mode)	Turns Noise Reduction On or Off. Turning this feature OFF reduces the video quality slightly, but improves the monitors response time to MOTION.
PC (PC Mode)	Selects between Auto or manual adjustment of the desktop screen. Auto Adjust: Auto synchronizes screen to graphics adaptor. Manual choices are: Phase (range 0-100), H-Position (range 0-100), V-Position (range 0-100), Frequency (range 0-100).
3D Comb	Activates the 3D comb filter.

5.6 PIP Menu

To access the **PIP** menu, press the **Menu** button on the front panel of the monitor, then press the left and right arrows to select the PIP icon. Press the up and down arrows to select the **PIP** submenu.

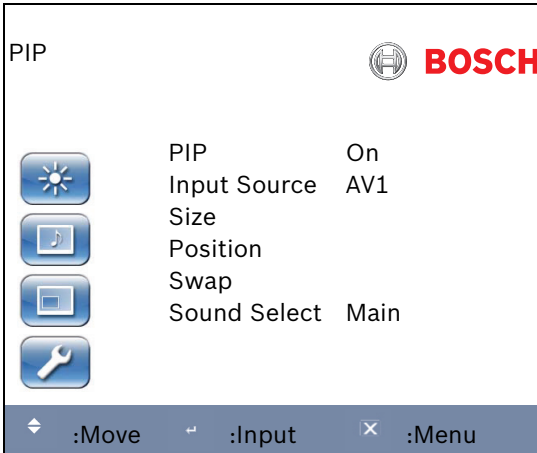


Table 5.5 PIP menu

Submenu	Definition
PIP	Activates the PIP feature.
Input Source	Select the video input source for the PIP area. The selections depend on the main video input source. Analog video sources (AV1, AV2, S-Video) can display only digital video (Component, HDMI, DVI, PC) inputs in the PIP area; digital video sources can only display analog video inputs in the PIP area. AV1, AV2, S-Video: Component, HDMI, DVI, PC Component, HDMI, DVI, PC: AV1, AV2, S-Video
Size	Enables 3 screen sizes: full screen side by side, 4:3 side by side, and 4:3 corner (177 mm [3.03 in.] diagonal).
Position	Enables 4 positions: bottom right, top right, bottom left, top left.
Swap	Alternates between the main and sub picture for the PIP mode. Continuously press to change selection.
Sound Select	Select the sound source from either the Main or the PIP input source (only available when PIP is enabled).

5.7 Setup Menu

To access the **Setup** menu, press the **Menu** button on the front panel of the monitor, then press the left and right arrows to select the **Setup** icon. Press the up and down arrows to select the **Setup** submenu.

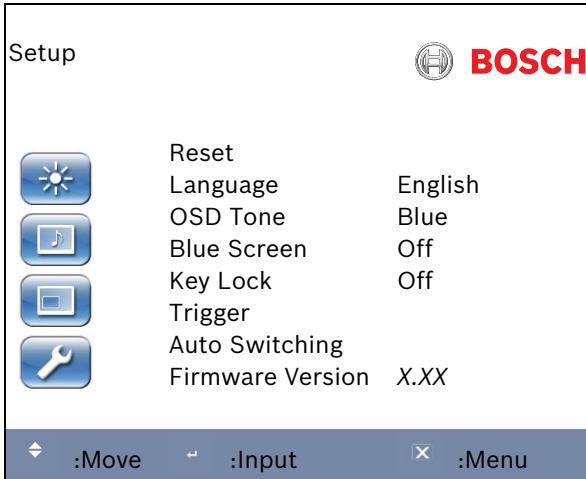


Table 5.6 Setup Menu

Submenu	Definition
Reset	Restores default settings.
Language	Adjusts the language of the OSD. Choices are: English, French, German, Italian, Dutch, Spanish, and Portuguese.
OSD Tones	Selects the type of background for the OSD menu. Choices are: Transparency and Blue.
Blue Screen	Enables or disables video loss indication. Choices are: On: displays a blue background when video loss is detected. Off: displays a black background when video loss is detected.
Key Lock	Enables or disables the Key Lock function.
Trigger	Opens the Trigger menu allowing you to configure the monitor's response to incoming alarms. See <i>Section 5.7.1 Configuring Alarm Relay Inputs, Page 37</i> .
Auto Switching	Opens the Auto Switching menu allowing you to configure the way the monitor cycles through video inputs. See <i>Section 5.7.2 Configuring Auto Switching, Page 39</i> .
Firmware Version	Displays the release level of the monitor firmware.



NOTICE! When key lock is enabled through the front panel, use either the remote control or the front panel buttons to disable the key lock command. To disable the key lock feature using the front panel buttons, press and hold both the Input and the **Menu** buttons until the monitor displays the Key Unlocked message.

5.7.1 Configuring Alarm Relay Inputs

The monitor allows you to connect an alarm relay cable from a device (camera or door) to the monitor, and then to configure the monitor’s response to an incoming alarm (see *Section 4.7 Connecting an Alarm Trigger, Page 25*).

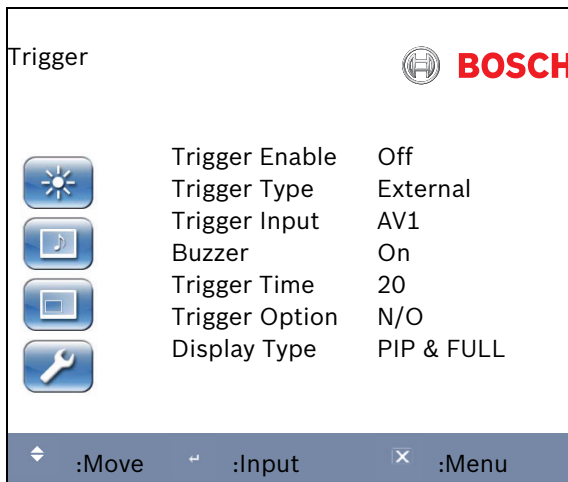


Table 5.7 Trigger Menu

Option	Definition	Selections
Trigger Enable	Activates the trigger feature.	ON or OFF
Trigger Type	Specifies the source of the alarm. This option is always set to External.	External

Option	Definition	Selections
Trigger Input	Select the video input source that the monitor displays when an alarm is activated. When the monitor receives an alarm input, it switches to the specified input source.	AV1 AV2 S-Video Component HDMI DVI PC
Buzzer	Activates an audible signal when the monitor receives an alarm input and switches to the Trigger Input video source. Note: If the Input video source is the same as the Trigger Input, the monitor does not sound the buzzer.	ON or OFF
Trigger Time	Select the amount of time, in seconds, that the monitor displays the Trigger Input video source.	0–100 seconds
Trigger Option	Select the type of physical trigger input. Consult the manual for the alarm source to determine your selection.	N/C (normally closed) N/O (normally open) High (2–5 V) Low (< .6 V)
Display Type	Select the mode in which the monitor displays the Trigger Input. The monitor takes one of the following actions: <ul style="list-style-type: none"> – Displays the Trigger Input in the Picture-in-Picture position (PIP & FULL) of the current video input source. Note: The main video source must support the Trigger Input source as a PIP option. See <i>Section 5.6 PIP Menu, Page 35</i>. – Switches the display to show the Trigger Input in the full screen (FULL). 	PIP & FULL FULL

5.7.2 Configuring Auto Switching

The Auto Switching feature allows the monitor to cycle the display of selected video inputs.

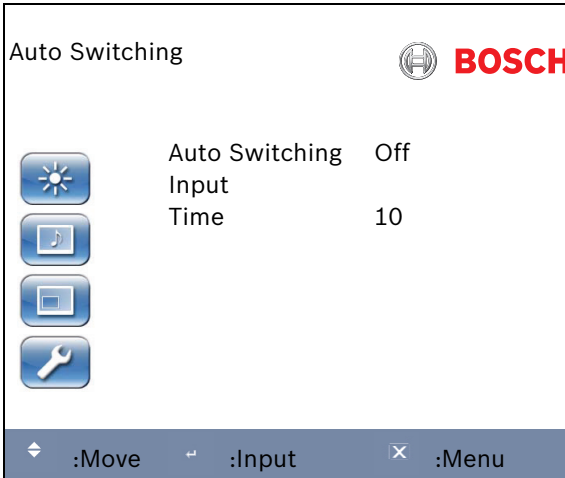


Table 5.8 Auto Switching Menu

Option	Definition	Selections
Auto Switching	Activates the Auto Switching feature.	ON or OFF
Input	Opens another menu in which you select the input sources to include in the Auto Switching cycle.	
Time	Select the amount of time, in seconds, that the monitor displays each selected input source.	0-100 seconds

Selecting Input Sources for Auto Switching

Use this menu to add or remove an input source from the Auto Switching cycle.

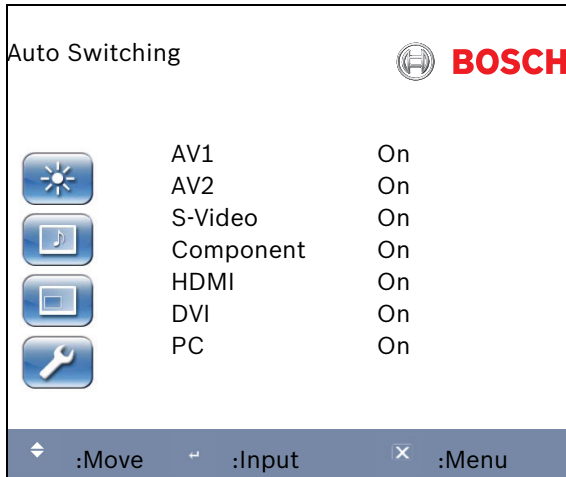


Table 5.9 Auto Switching Menu – Input Source Selection

1. Use the Up and Down arrow buttons to select an input source.
2. Press the Right Arrow to change the status of the input source.
3. Use the Up and Down arrow buttons to change the status of the input source:
 - Select On to include the input source in the cycle.
 - Select OFF to remove the input source from the cycle.

6 Power Management

These monitors feature a power management system to “power down” upon receipt of the display power management signaling (DPMS) from a DPMS video card.

The DPMS-compliant video card performs this signaling system by not sending a horizontal, vertical, or a sync signal.

The monitor enters an appropriate mode through identifying each of the three (3) modes of the signaling system.

6.1 Power Consumption

Mode	Power Consumption
ON	70 W
STANDBY	10 W
SUSPEND	10 W
ACTIVE OFF	10 W

6.2 LED Indicator

The power management feature of the monitor is comprised of these stages:

Mode	LED Color	Monitor Operation
ON	Green	Normal operation
STANDBY	Flashes	Screen blanks after idle time and some electronic circuits or all circuitry in the monitor shuts down.
SUSPEND	Red	
ACTIVE OFF		
UNSUPPORTED MODE	Green	Normal operation but the screen displays an error message.
POWER OFF	Red	Not operational.

7 Maintenance

To clean the LCD panel, wipe off water droplets or oil immediately with absorbent cotton or a soft lint-free cloth. Staining and discoloration may occur if left on the panel for long periods.

If the surface (polarizer) of the LCD panel is dirty or stained, use absorbent cotton or a soft lint-free cloth to remove the residue as follows:

1. Turn off the computer or display.
2. Do not spray any liquid directly on the screen. Dampen a clean, soft, lint-free cloth with water only (using a paper towel or dirty cloth can scratch the screen).
3. Gently wipe the screen starting from the top of the screen to bottom wiping in a downward motion. Be careful not to press too hard to avoid damaging the screen.
4. To avoid streaking, wipe the screen again with another clean, dry, lint-free cloth.



NOTICE! If water does not work, use a mild cleaner labeled for use with LCD panels, available at office supply stores.

Do not use any of the following as a cleaning agent:

- Ketone type materials
- Ethyl alcohol
- Ethyl acid
- Toluene
- Methyl chloride
- Ammonia

Use of these materials may permanently damage the polarizer due to a chemical reaction.

8 Troubleshooting Guide

Problem	Solution
No image is displayed on screen	<ul style="list-style-type: none"> – Check that the power cord of the monitor is securely connected into the wall outlet or grounded extension cable or strip. – Power switch should be in the ON position and the LED lit. – Check that the Brightness and/or Contrast adjustments of the display have not been turned down to minimum levels.
“Going to Sleep” message is displayed	<ul style="list-style-type: none"> – The signal cable should be completely connected to the video card/computer. – The video card should be completely seated in its slot and the computer switched ON.
Display image is not centered, is too small, or too large in the PC mode	<ul style="list-style-type: none"> – Push the down key to activate the Autoset function. <li style="text-align: center;">-or- – Adjust the Clock and Phase in the PC OSD submenu.
Monitor does not switch upon trigger input	Compare the Trigger Option setting on the Trigger menu with the physical alarm output setting for alarm device.
Monitor does not sound the buzzer	<p>If the video input and the Trigger Input are from the same source:</p> <ul style="list-style-type: none"> – Set the Trigger Time to zero (0). <p>If the video input and the Trigger Input are from different sources, check the following settings on the Picture/Sound menu:</p> <ul style="list-style-type: none"> – Ensure that the Mute option is set to OFF. – Ensure that the Volume is set to an audible level.

Problem	Solution
Vertical or horizontal noise is present in the picture	<ul style="list-style-type: none"> – Push the down key to activate the Autoset function (for VGA inputs only). -or- – Adjust the Clock and Phase in the PC OSD submenu.
Incorrect colors	<ul style="list-style-type: none"> – Press the Menu button on the front panel of the monitor, then press the down arrow to select the Color Tone menu. Press the down arrow on the front panel and select Cool, Warm, or Normal. - or - – Press the Menu button on the front panel of the monitor, then press the right arrow to select the Setup menu. Press the down arrow on the front panel and select Recall to reset to the default settings.
The error message “Out of Range” is displayed	<p>PC is operating with either a resolution or timing mode that is not supported by the monitor. Change the PC timing mode to one of the valid combinations below:</p> <p>640 x 480; 60/72/75 Hz 800 x 600; 60/72/75 Hz 1024 x 768; 60/70/75 Hz 1280 x 1024; 60 Hz 1600 x 1200; 60 Hz</p>

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