Algolith

MOSQUITO

GUIDE TO INSTALLATION AND OPERATION

PRELIMINARY

Table des matières

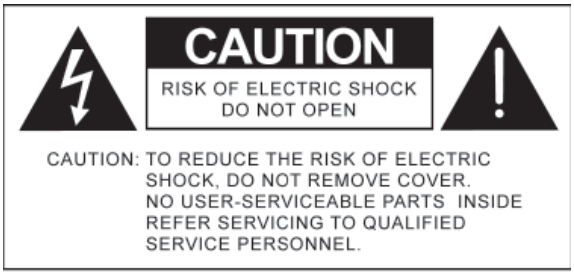
Warning

WARNING:

To prevent fire, shock hazard or product damage, do not expose the unit to rain or moisture, dripping or splashing of any liquids.

CAUTION:

- Ensure this unit is well ventilated.
  To prevent hazard due to overheating, ensure that curtains and any other type of materials do not obstruct the ventilation vents.
- Do not place on another apparatus that might be heating nor place another apparatus that could obstruct the ventilation vents on top of this unit.
- Do not install near any heat sources such as radiators, stoves, or other apparatus (such as amplifiers) that produces heat.



This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the litterature accompanying the appliance.

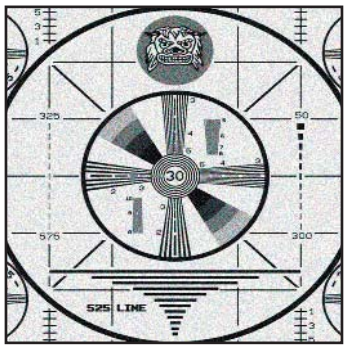
Introduction

Compression Artifacts

Digital video compression has introduced a new set of picture artifacts known in the industry as «Mosquito Noise» and «Blocking Artifacts». These new degradations coexist with analog video noise and become quite objectionable when seen on today's large screen displays (see images below).

The Algolith's ***Mosquito*** has been engineered to reduce the appearance of noise and compression artifacts, allowing a much better viewing experience.

Mosquito Noise.



Analog Type Noise.

Blocking Effect.

Mosquito

Mosquito is a dual input three dimensional digital noise reduction processor, designed to clean up signals from DVD Players/Recorders, Satellite Receivers, Cable Decoders, PVRs and other digital devices using MPEG-2 compression.

4 Essential Steps

Mosquito performs four distinct image noise reducing techniques.

1- Mosquito noise is removed, using Algolith's proprietary region-based algorithm.

2- Block Artifact Reduction (BAR) blends and diminishes inherent 8 x 8 pixel block structures of MPEG2 images.

3- Algolith's advanced motion adaptive temporal filtering eliminates "bad reception and low light" noises.

4- ***Mosquito*** provides image enhancement using non-linear filters for exceptionally sharp and noise free pictures.

Getting Started

Accessories

Your ***Mosquito*** comes with the following:

- 1 Remote Control
- 1 Operation Manual
- 1 Power Supply DC 12V
- 1 AC Power Cord
- 1 USB Control Cable
- 3 Remote Control Batteries AAA
- 1 Rackmounting kit
  (Rackmount brackets, left and right, 4 flat head screws)

Connecting your ***Mosquito***

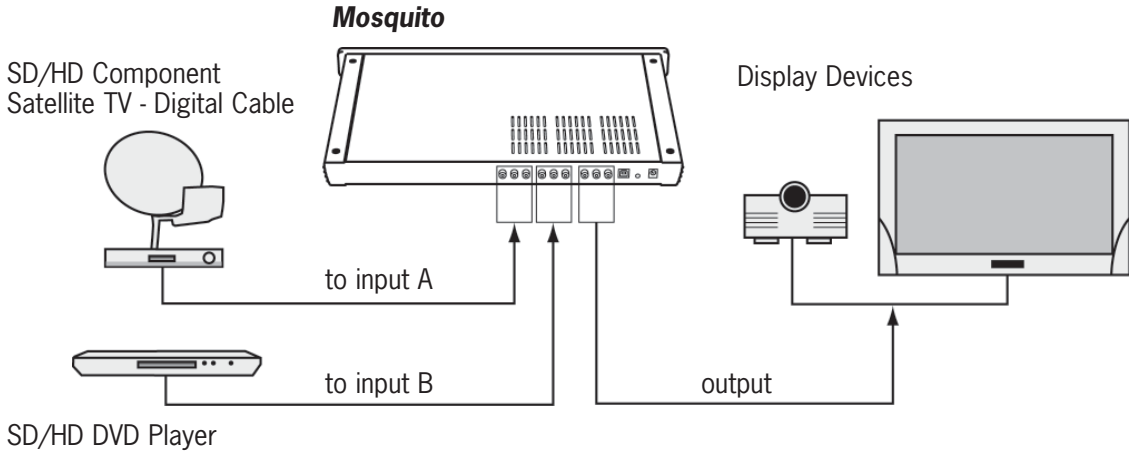
Typical Application

Mosquito should be installed between your video sources and your display device. See figure below for a typical set up.

- ***Mosquito*** does not have audio processing capability. When two video sources are connected, switching from one source to the other will require external audio switching. The video processing delay introduced by ***Mosquito*** is negligible, and does not require any audio delay compensation.

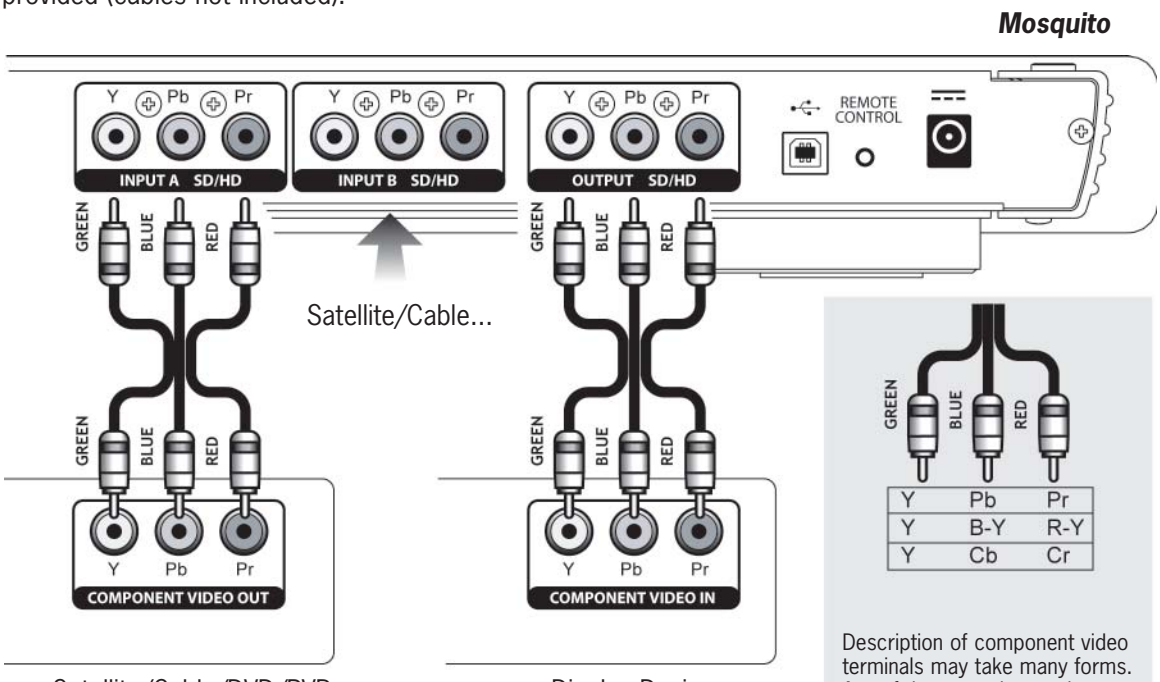
- Each input, A or B, is capable of accepting SD or HD resolution component video signals. When a single source is installed, any input A or B can be used. Factory default input selection is input A.

- To enhance your Home Theatre listening experience, ***Mosquito*** is fanless and achieves cooling through natural convection and dissipation of heat. Therefore when installing ***Mosquito***, avoid any obstruction of its air vents, or placement over heat dissipating devices such as amplifiers, which may damage your ***Mosquito*** or cause it to overheat and not operate properly.



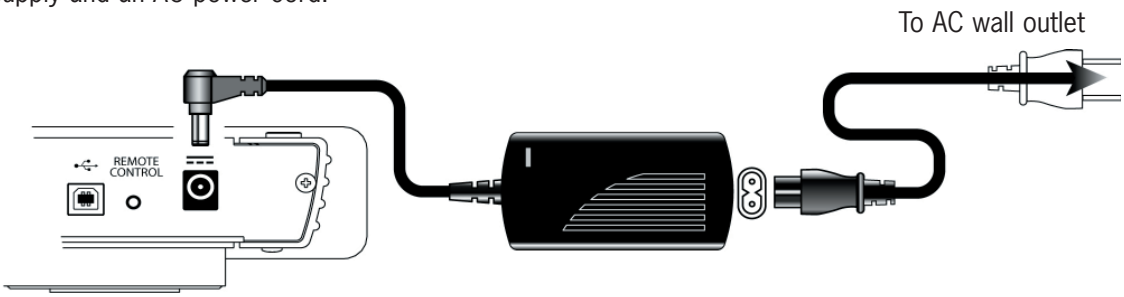
Video Connections

Mosquito accepts SD or HD analog component video signals. Two sets of input terminals are provided (cables not included).



Power Connections

Your ***Mosquito*** comes with an external power supply and an AC power cord.

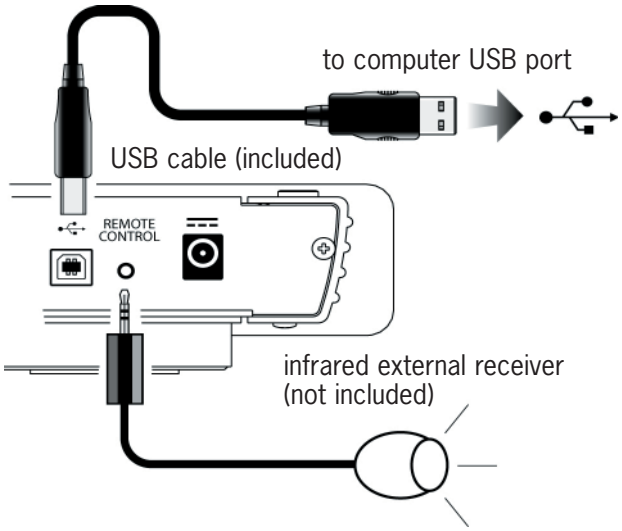


Note: Use only provided ***Mosquito*** power supply.

Control Connections

Mosquito can be controlled in various ways. Operating parameters can be changed using the Infrared (IR) remote control in conjunction with the OSD (On Screen Display).

Mosquito IR remote range can be extended, or can be controlled by an external device using the «wired remote» control port. (see diagram).



USB Port

The ***Mosquito***'s USB port can be used to update and control every parameter of the ***Mosquito*** using your PC's USB port and provided ***Mosquito*** USB port, cable, and software. Visit Algolith's website (***www.algolith.com)*** for availability of the latest firmware updates and download instructions.

Operating *Mosquito*

Function Keys

The remote control used in conjunction with the On Screen Display (OSD) allows change of the ***Mosquito***'s various parameters.

Power

Power button toggles between On/Off state.

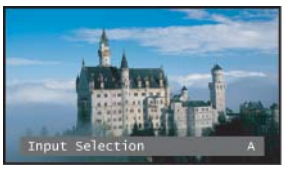
1- Press the [**POWER**] key to turn ***Mosquito*** On or Off. When On, the front panel blue LED lights up, and the picture appears on the display device.

Note: The Blue LED can be dimmed or set to Off using the [**MENU**] key.

Input Selection

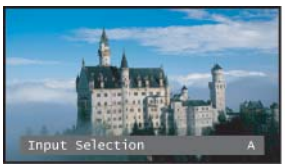
Input Selection function selects between input A and input B.

1- Press the [**INPUT**] key to access command.
2- Use [▶] or [◀] to change the selected input.



3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

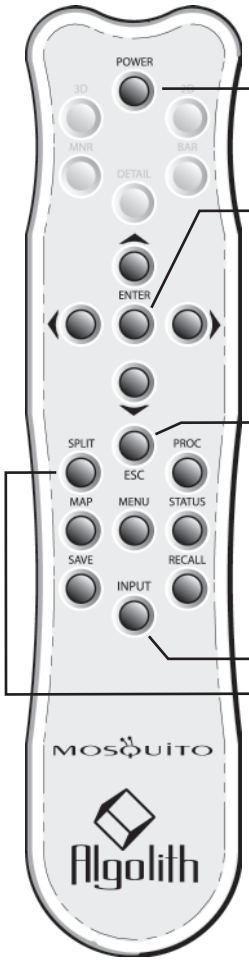
Note: If no signal is present at the input, the menu will not be visible, but will remain active. Simply press an arrow key to get back to a valid input.



No signal present at input B.

Split Image

The **Split Image** function separates the input image in two identical sections. On the left is an unprocessed image and on the right is a processed, or noise reduced and enhanced image. This function is useful to perform processing evaluation and adjustments.



POWER

ENTER

Up or Right to increase
Down or Left to decrease

ESC

Function keys

INPUT

SPLIT

1- Press the [**SPLIT**] key to access command.

2- Use [▶] or [◀] to select between On and Off states.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

Processing

The **Processing** function enables or disables noise reduction, **BAR** and **Detail Enhancement** («processing» of the video image). When **Processing** is Off, your image is displayed as received from the source.

1- Press the [**PROC**] key to access command.

2- Use [▶] or [◀] to select between On and Off states.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

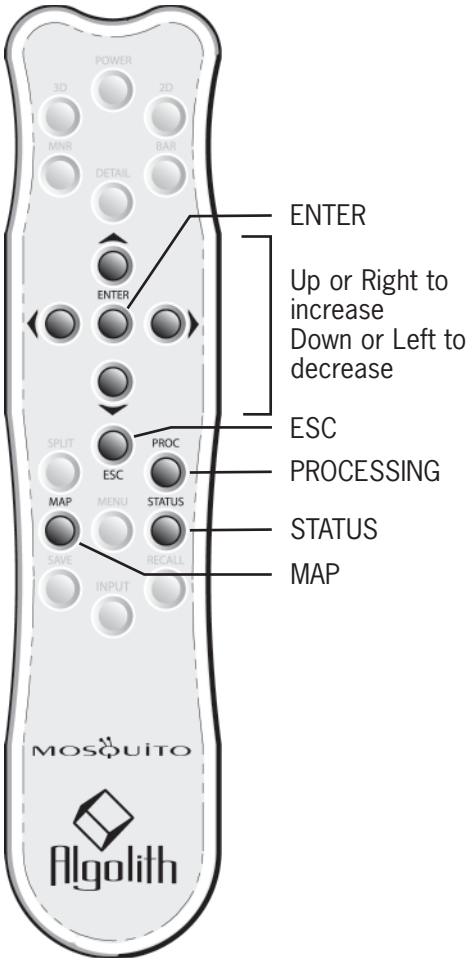
Note: No Control can be achieved over **Map Detection Regions**, **MNR**, **2D Spatial Filter**, **3D Temporal Filtering** and **Detail Enhancement** commands when **Processing** in Off. Function value will be replaced by N/A (not available).

Map Detection Regions

The **Map Detection Regions** function displays a segmentation map used by ***Mosquito*** to apply different noise reduction techniques to various regions of the image. Each level of gray represent a region.

1- Press the [**MAP**] key to see segmentation maps.

2- Use [▶] or [◀] to change the value.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.



Status

Status function provides complementary information and firmware version of the Mosquito.

1- Press the [**STATUS**] key to obtain information.

STATUS	
Input Video Format	480p
Controller Rev. No.	p.19
CPLD Rev. No.	0.01
FPGA Rev. No.	2.00
Date Code	0422

2- Press the [**ENTER**] key to exit (or wait for menu to disappear).
or
3- Press the [**ESC**] key to cancel.

Save

The **Save** command allows actual settings of ***Mosquito*** to be saved in memory for later recall.

1- Set parameters values as desired. (see ***Direct Process Controls***, and ***Access Via Menu Key*** sections for instructions on changing settings).
2- Press the [**SAVE**] key to access command. Actual settings are shown on screen.

```
3D Temporal Filter          3
2D Spatial Filter           6
MNR/DNR                   MNR
BAR Block Artifact Reducer  On
Detail Enhancement          3

Save parameters in         A1
```

3- Use [▶] or [◀] to assign a number to memory.
4- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
5- Press the [**ESC**] key to cancel.

Note: Memory numbers are from 1 to 10 and are preceded with the letters A or B, depending on the active input.

Recall

Allows for a memorized setting of ***Mosquito*** to be recalled.

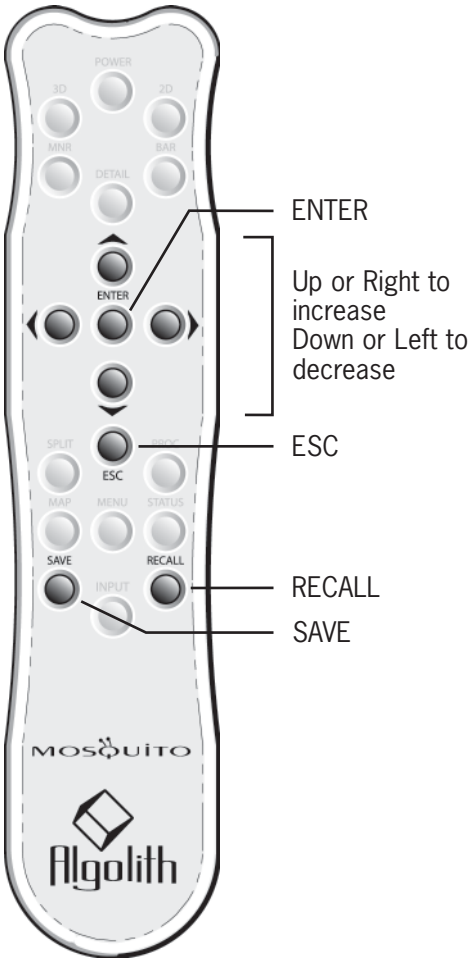
1- Press the [**RECALL**] key to access command.

```
3D Temporal Filter          off
2D Spatial Filter             8
MNR/DNR                   MNR
BAR Block Artifact Reducer Off
Detail Enhancement            6

Recall parameters from      B3
```

2- Use [▶] or [◀] to select a memorized setting.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

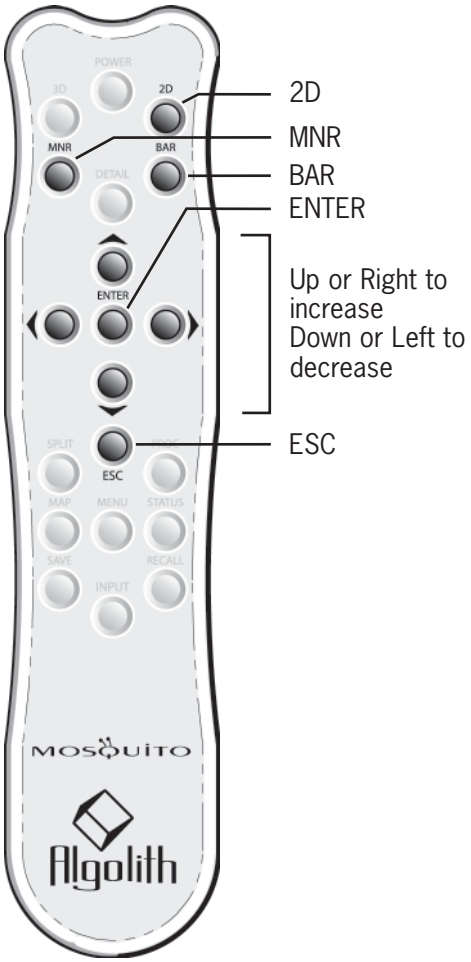
Note: A0 and B0 positions hold factory settings. Settings memorized while in input B cannot be recalled in input A and vice versa.



Direct Process Controls

Control for noise reduction mode and adjustment of various settings is achieved through the following remote control keys.

(See Technical Tutorial at end of user manual for technical informations and tips on how to set your ***Mosquito***.)



MNR/DNR

Selects between **MNR** (MPEG Noise Reduction) and **DNR** (Dynamic Noise Reduction) modes.

1- Press the [**MNR**] key to access menu.

2- Use [▶] or [◀] to choose from MNR and DNR.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

BAR Block Artifact Reducer

The **BAR Block Artifact Reducer** function enables or disables Block Artifact Reduction.

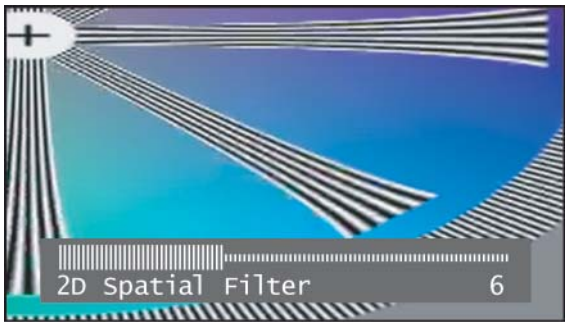
1- Press the [**BAR**] key to access command.

2- Use [▶] or [◀] to select from On and Off states.
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

2D Spatial Filter

The **2D Spatial Filter** function sets the level of 2D or spatial noise filtering.

1- Press the [**2D**] key to access command.



2- Use [▶] or [◀] to adjust the level of filtering from 0 (Off) to 15 (Max).
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

3D Temporal Filter

The **3D Temporal Filter** function sets the level of 3D or temporal noise filtering.

1- Press the [**3D**] key to access command.

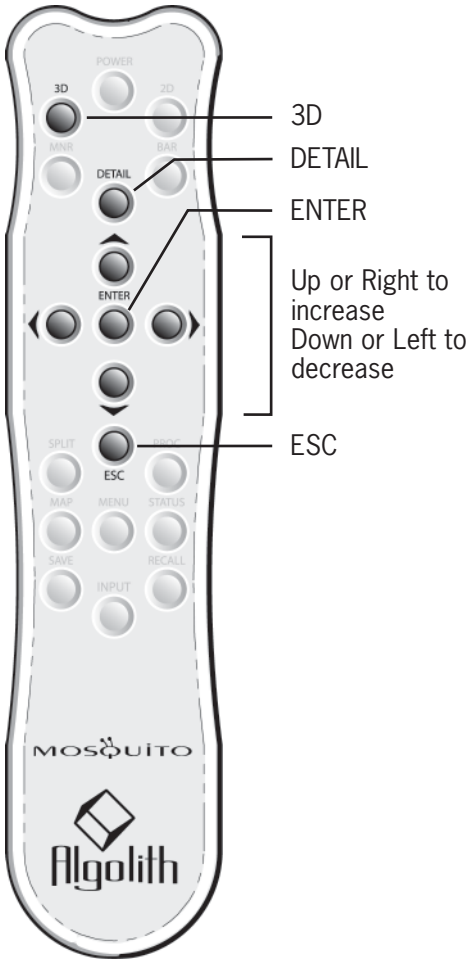
2- Use [▶] or [◀] to adjust the level of filtering from 0 (Off) to 15 (Max).
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.

Detail Enhancement

The **Detail Enhancement** function sets the level of detail enhancement in the image.

1- Press the [**DETAIL**] key to access command.

2- Use [▶] or [◀] to adjust the level of detail enhancement from 0 (Off) to 15 (Max).
3- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
4- Press the [**ESC**] key to cancel.



Access Via Menu Key

Menu

The **Menu** function is accessible directly on the remote control using the [**MENU**] key. It provides a global view and method of adjustment for all settings.

1- Press the [**MENU**] key to access main menu.

```
 MENU - DISPLAY PARAMETERS
 ↑ previous page
◇Input Selection              A
 Processing                  on
 Split Image                off
 Map Detection Regions      off
 ↓ next page
      ↓↑ select parameter
      ←→ select value
```

2- Use [▲] and [▼] to move in the menu and to change page. (menu consists of 3 pages)

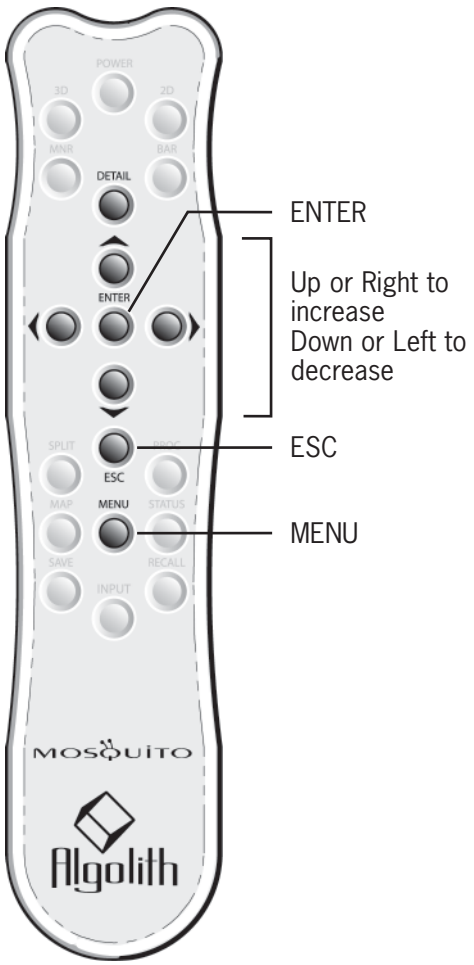
```
 MENU - PROCESSING PARAMETERS
 ↑ previous page
◇3D Temporal Filter           3
 2D Spatial Filter            6
 MNR/DNR                    MNR
 Bar Block Artifact Reduct.  on
 Detail Enhancement         off
 ↓ next page
      ↓↑ select parameter
      ←→ select value
```

```
 MENU - CONTROL PARAMETERS
 ↑ Previous page
◇LED Intensity              Min
 Language                English
 ↓ next page
      ↓↑ select parameter
      ←→ select value
```

3- Once on the appropriate parameter, use [▶] or [◀] to adjust value, or to choose from selection.
4- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
5- Press the [**ESC**] key to cancel.

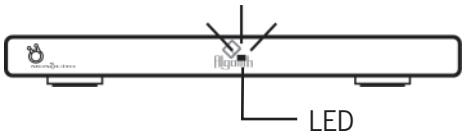
Page 3 parameters are only accessible via the menu key.

- LED Intensity
- Language



LED Intensity

The blue LED of the ***Mosquito***'s front panel can be adjusted to 3 levels of intensity or set to Off.



1- Press the [**MENU**] key to access main menu.
2- Use [▼] to go to page 3 of main menu and select **LED Intensity**.

```
 MENU - CONTROL PARAMETERS
 ↑ Previous page
◇LED Intensity              Min
 Language                English
 ↓ next page
      ↓↑ select parameter
      ←→ select value
```

3- Use [▶] or [◀] to adjust **LED Intensity** from Off, Min, Med, Max.
4- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
5- Press the [**ESC**] key to cancel.

Available Languages

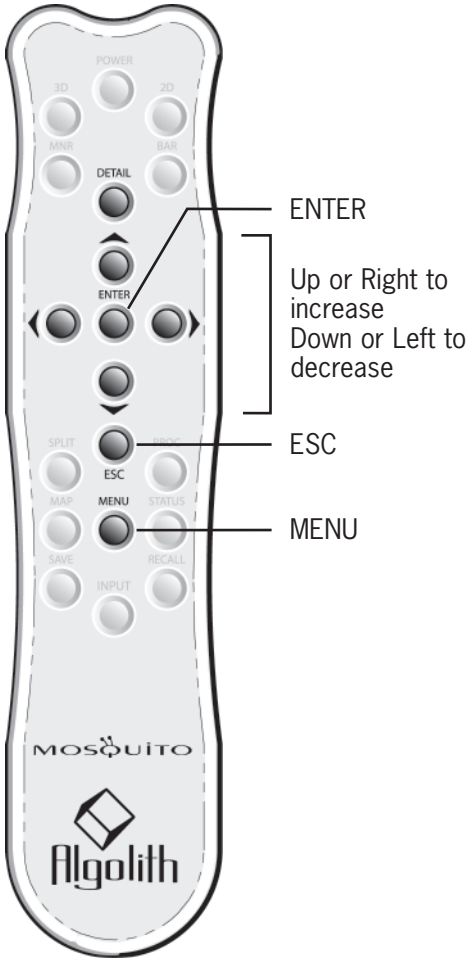
Menus can be displayed in five languages.

1- Press the [**MENU**] key to access main menu.
2- Use [▼] to go to page 3 of main menu and select **Language**.

```
 MENU - CONTROL PARAMETERS
 ↑ Previous page
 LED Intensity              Min
◇Language                English
 ↓ next page
      ↓↑ select parameter
      ←→ select value
```

3- Use [▶] or [◀] to choose from:
- English
- French
- Spanish
- German
- Portuguese

4- Press the [**ENTER**] key to save and exit (or wait for menu to disappear).
or
5- Press the [**ESC**] key to cancel.



Technical Tutorial

Here is useful information about noise reduction and how your ***Mosquito*** will improve your viewing experience.

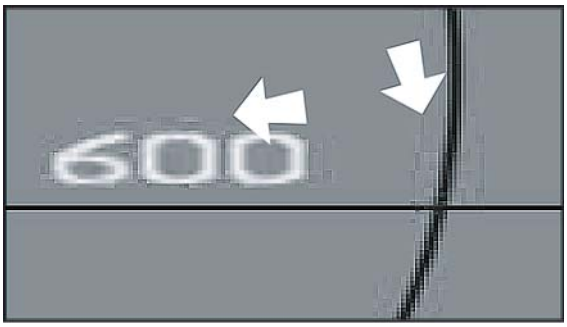
MNR mode vs DNR mode

MNR function (page 11) lets you toggle between **MNR** (MPEG Noise reduction) and **DNR** (Dynamic Noise Reduction) modes. Here is how to use each mode:

MPEG Noise Reducer - MNR mode

Mosquito noise (or MPEG noise) is ramdom noise visible along edges of the image and is part of any compressed signal. Today, the most widely available compression scheme is MPEG2. ***Mosquito*** will correct for all DCT based compression artifacts, such as those found in MPEG2.

Picture with mosquito noise (enlarged detail).



Typical mosquito noise (enlarged detail).

Signals from DVD, satellites, and digital cable have intrensic compression artifacts suh as mosquito noise. Basically, whenever the source is digital and compressed, the ***Mosquito*** should be set to the the **MNR** mode using the [**MNR**] key on your remote.

Dynamic Noise Reducer - DNR mode

When your image source is not compressed, **DNR** mode should be selected. «Dynamic» or «Gaussian» noise appears as dynamic or moving grain in an image. This type of noise is sometimes observed on low intensity camera captures from analog sources such as VHS, or from bad reception of analog signals from cable or an antena. It is not the result of digital data compression, but can be diminished using your ***Mosquito*** set to the **DNR** mode.

Picture with dynamic noise.

Typically, gaussian noise in analog video signals will be reduced in the **DNR** mode.

2D spatial and 3D temporal filtering

Your ***Mosquito*** reduces compression artifacts (mosquito noise), by looking and comparing the content of the spatial (**2D**) and temporal (**3D**) domains. You can you set the filtering level for each.

2D Spatial Filtering

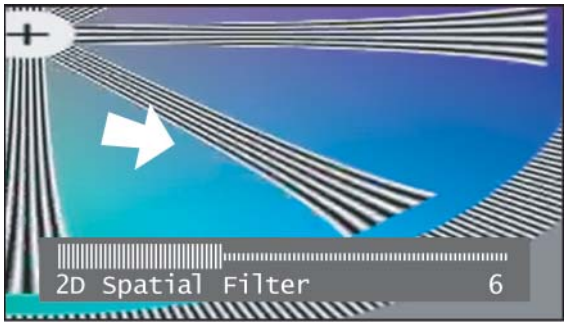
In spatial filtering, images are considered static and mosquito noise is reduced on a picture by picture basis. To experiment and view the effect of various settings and set 2D level filtering, you can put your video on «pause», and see the effect of filtering on the image as you increase or decrease its value.

3D Temporal Filtering

Temporal filtering (**3D**) looks at images one after the other, over time. The ***Mosquito*** looks for moving pixels in the image and over time then correlates this information with spatial 2D filtering above. You won't be able to see the effect of the 3D filtering if you try to set it on a paused video. It's effect is only visible on moving pictures.

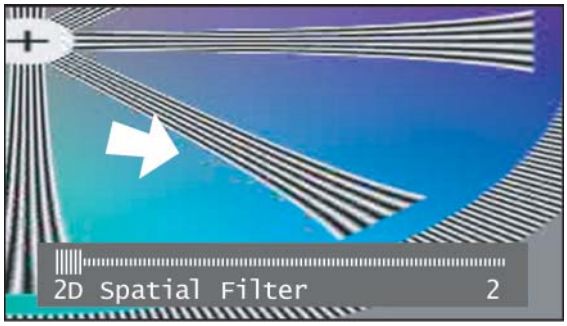
Adjusting 2D Spatial Filtering

■ Generally, a proper setting for 2D filtering is above a value of 8, and should be set to high values to remove mosquito noise. However reducing mosquito noise using the **2D Spatial Filter** shouldn't be so high as to blur image detail.



2D spatial filtering with proper settings.

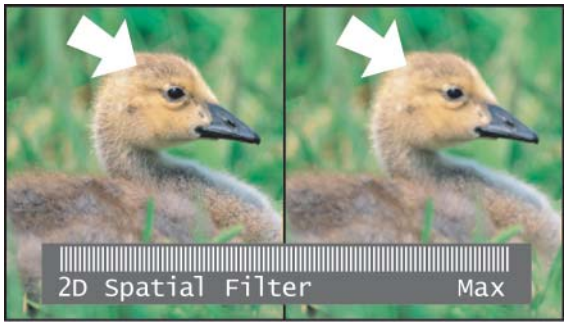
■ Too low a value of 2D filtering is likely to leave some mosquito noise in your image.



Low filtering (residual noise).

■ Too high a level of filtering can result in bluring of finer details in the image.

(see image top right)

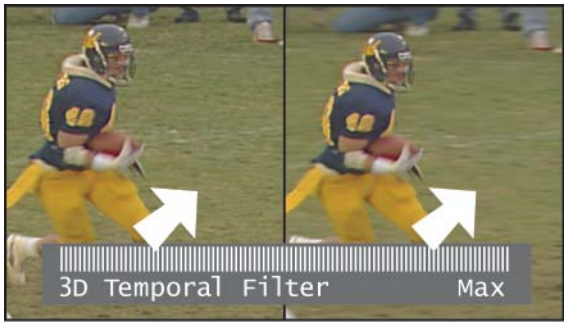


2D filter set too high, seen a with split image. (left image unprocessed). Fine details are lost.

Adjusting 3D Temporal Filtering

■ Generally, 3D filtering requires little adjustment if any, and should be set to a low value of about 3. You can experiment with setting it: Know that a low setting will work with medium to fast moving images, while a high value should be used only with slow to non moving images. If value is set high on moving images, the resulting images will have «image blur» and visible «image retention».

■ A low value of 3D filtering is preferable for most moving images. A high value should only be used on slow or non moving images.



3D filter set too high, seen with a split image. (left image unprocessed). Image blur can occur.

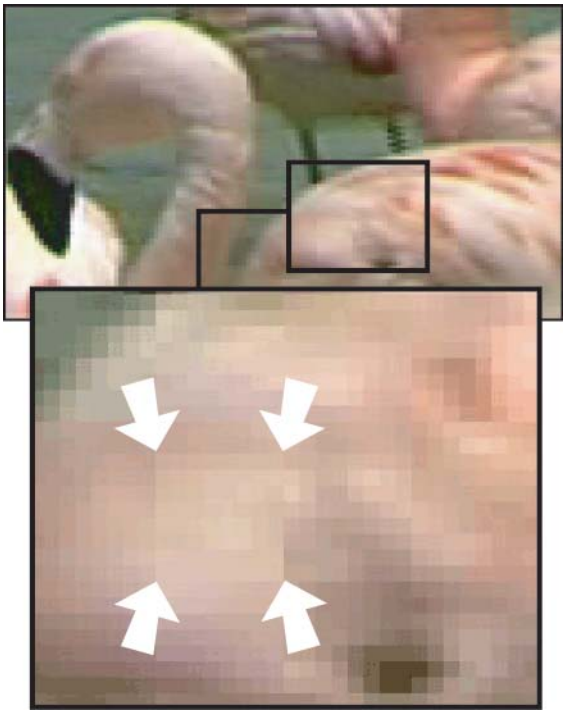
■ Typically, **3D Temporal Filter** is set to 3 and **2D Spatial Filter** is set to 10.

Algolith factory settings:

2D SPATIAL FILTER: 10
3D TEMPORAL FILTER: 3

Blocking Artifacts

Blocking artifact or «Macro-blocking» is created whenever images are digitally compressed and is most visible on fast moving images like sports, or action scenes. To reduce this artifact, set the BAR mode to On.



Blocking Artifact (enlarged detail).

BAR Block Artifact Reducer will help blend in and reduce macro-blocks.

Image processed with BAR.

Blocking artifacts are not part of analog and uncompressed signals, therefore, when viewing such signals, set **BAR** to Off.

Detail Enhancement

Mosquito's detail enhancement is achieved after MPEG noise reduction, so you can increase detail substantially without reintroducing artifacts. Once both 2D and 3D filtering are set properly, the ***Mosquito*** will yield impressive sharp and noise free images.

Specifications

Video Inputs (2) :

- Component (Y/Pb/Pr) interlaced/ progressive SD/HD
  - + 480i/p
  - + 720p
  - + 1080i
- Automatic interlaced/progressive SD/HD input detection

Video Outputs :

- Component (Y/Pb/Pr) interlaced/ progressive SD/HD
  - + 480i/p
  - + 720p
  - + 1080i

  (output follows input)
- 14-bit processing
- Proprietary 3D-MNR MPEG Noise Reduction
- Proprietary 3D-NR Gaussian Noise Reduction
- Proprietary 2D Auto detection Block Artifact Remover (BAR)
- Proprietary Detail Enhancer
- Universal IR Remote Control
- USB control and upgradability

Front Panel Features:

- IR sensor
- Power on blue LED indicator

Back Panel:

- Dual Analog Component Inputs
- Analog Component Output
- USB control
- Wired remote control
- External DC power supply

User Selectable Controls:

- Input Selection.
- Detail Enhancer Level.
- 2D Noise Reducer Level.
- 3D Noise Reducer Level.
- Block Artifact Reducer (BAR) (on/off)
- Split screen (on/off)
- Processing (on/off)

OSD:

- OSD (On Screen Display) with status feedback

Power:

- External AC Adaptor
- Input: 90-240 VAC 1A
- Output: 12VDC 4.5A
- Low Profile fanless chassis

Mechanical:

- Width: 17 in.
- Depth: 12 in.
- Height: 1.5 in.
- Weight: 10 lbs
- Rack Mounting Brackets

* Specifications are subject to change without notice. Weight and dimensions are approximate.

Limited Warranty

Limited Warranty Coverage

Algolith Inc. warrants that the equipment it manufactures shall be free from defects in material and workmanship for a period of one (1) year from the date of purchase. If equipment fails due to such defects, Algolith Inc. will, at its option, repair or provide a replacement for the defective part or product.

Equipment that fails after the warranty period, has been operated or installed in a manner other than that specified by Algolith, or has been subjected to abuse or modification, will be repaired for time and material charges at the Buyer's expense.

All out-of-warranty repairs are warranted for a period of ninety (90) days from the date of shipment from the factory.

A purchase receipt or other proof of the original purchase date is required for warranty service.

Algolith Inc. makes no other warranties, expressed or implied, of merchantability, fitness for a particular purpose or otherwise. Algolith's liability for any cause, including breach of contract, breach of warranty, or negligence, with respect to products sold by it, is limited to repair or replacement by Algolith, at its sole discretion.

In no event shall Algolith Inc. be liable for any incidental or consequential damages, including loss of profits.

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Troubleshooting

Please read the following troubleshooting guide carefully before calling Algolith's support lines.

Television screen is blank:

1- Is *Mosquito* On?
Source signals go trough the ***Mosquito***. When ***Mosquito*** is Off, no picture can reach the display device. (See **Power** on page 8).

2- Is a valid input selected?
Selecting a vacant input (ex. no signal present at input B) will leave the screen blank. Use the remote control [**INPUT**] key to select a valid input (see **Input** on page 8).

OSD menus appear small on screen:

1- It is normal for On Screen Display menus to appear in different sizes.
A 480i/p source signal will make for a large On Screen Display where, at the opposite, a 1080i source will make for a smaller On Screen Display.

Sound does not correspond to image:

1- *Mosquito* does not have audio processing.
When 2 digital video sources are connected to ***Mosquito***, switching from one to the other will necessitate external audio switching.

Moving portions of the image create a blurry trail:

1- 3D Filtering is set too high.
When **3D Temporal filter** is set too high, it can create a blurry trail and cause a loss in image details. Reduce 3D filtering strength. (See **3D Temporal Filter** commands on page 12).

Screen shows a black and white image:

1- Map Detection Regions command is On.
Map command needs to be set to Off. (See page 9).

Front panel's blue light won't light up:

1- Is *Mosquito* On?

2- The blue LED has been turned Off.
The blue LED can be adjusted to 3 levels of intensity and can be turned off in the **Menu** command. Use the remote control to set it back to On. (See **LED Intensity** on page 14).

Stuck with a bad image:

1- Is the Processing On?
Even though ***Mosquito*** is On, processing of the image could have been set to Off and the source image is displayed with all of its moquito noise and blocking artifacts. Set **Processing** command to On. (See **Processing** command on page 9).

2- Default factory settings can be recalled at any time.
Default factory settings can be recalled as **A0** (when using input A) or **B0** (when usign input B) in the **Recall** command. (See **Recall** command on page 10).

N/A - can't modify parameters:

1- Processing is Off.
When the **Processing** function is set to Off, no control can be achieved over **Map Detection Regions**, **MNR**, **2D Spatial Filter**, **3D Temporal Filter** and **Detail Enhancement**. They become «Not Available» (N/A). Set the **Processing** function back to On (see page 8).