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# User Guide

Version 1.45W Software





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## AirCleaner™ User Guide

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### Part Number

9100-0416-01

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## FCC Compliance and User Information

The following information has been provided to clarify FCC requirements for operation of this device. These requirements are found in the FCC rules for radio frequency devices, Part 15.

### Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

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## Important - Modifications & Shielded Cables

Changes or modifications to this product not authorized by Abekas, Incorporated could void the FCC Compliance and negate authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of Abekas peripheral devices and Abekas shielded cables and connectors between system components. It is important that Abekas peripheral devices are used, and shielded cables and connectors are used between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. Abekas peripheral devices and the properly shielded cables and connectors can be obtained directly from Abekas, or through an Abekas-authorized dealer.

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## Safety and First Aid

Abekas equipment is designed to the highest standards of quality and reliability. However, no matter how these systems are designed, operators and maintenance personnel can be exposed to electrical shock hazard when protective covers are removed for maintenance or the installation of options. With this caution in mind, each operator and engineer must observe all safety regulations, and have a clear understanding of first aid procedures related to electrical hazards.

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## Safety and Compliance Certifications

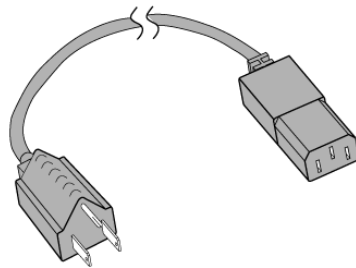
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- Certified to EN55103-1 and EN55103-2



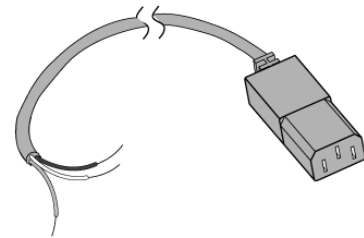
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## Power Information

This device is supplied with two styles of power cords. One is for use in the United States and those areas where a North American style power cord can be used. A second style of power cord is provided for international use. The international cord has a receptacle on one end for fitting to the Abekas hardware and three pre-stripped wires on the other end, ready for installation of the proper international plug (supplied by the customer).



North American



International IEC 320

To ensure safe operation and to guard against potential shock or risk of fire, ensure the power source is within the required voltage range and frequency for which the AirCleaner power supply has been set.

- Input AC Power Requirement: 100 to 240VAC / 3 to 1.5A / 60 to 50Hz

**WARNING** AirCleaner uses open-module power supplies with:

**UNUSUALLY HIGH CURRENT and VOLTAGES!**

*The power supplies should NEVER have external AC power connected when the chassis top cover is removed.*

**Risk of DEADLY electrical shock is EXTREMELY HIGH!**

*Always remove all AC power from main chassis BEFORE removing the chassis top cover. For units fitted with the redundant power supply option, be sure to remove BOTH AC power cords.*

## Operating Environment

The AirCleaner optimum operating environment is within the following ranges:

- Recommended Operating Temperature: 20°C to 35°C (68°F to 95°F)
- Recommended Operating Humidity: 20% to 80% non-condensing

**NOTE** *High temperature/humidity should be avoided at all times.*

## Safety Information

ENGLISH	WARNING!	IMPORTANT SAFETY NOTICES
<p>This system complies with safety standard IEC/EN60950. To ensure safe operation and to guard against potential shock hazard or risk of fire, the following must be fulfilled:</p> <ul style="list-style-type: none"> <li>• This system features auto-ranging power supplies. Ensure that your power source is within the correct operating range of voltage and frequency, as required by the system.</li> <li>• Each chassis in this system must be electrically grounded by connecting the input power cord(s) to a correctly wired and grounded power outlet.</li> <li>• The input power cord(s) supplied with this system must be wired as follows:</li> </ul>		
	Live = Brown	Neutral = Blue
		Earth = Green/Yellow
	<p>Completely disconnect <u>all</u> input AC power cords from chassis before removing top cover from chassis. Failure to do so will expose dangerous electric currents and voltages. Physical contact with these electric currents and voltages is extremely dangerous and may result in severe physical injury or death! Only qualified service personnel should remove the top cover from the chassis.</p>	
	<p>Modules marked with this symbol may be removed while the system is operating (powered). After removing a module, beware of dangerous electric currents and voltages that are exposed on the module receptacle connector inside the chassis. Please keep fingers, tools, and foreign metal objects away from the exposed receptacle connector while the chassis has input AC power applied. Physical contact with these electric currents and voltages is extremely dangerous and may result in severe physical injury or death! Only qualified service personnel should remove these modules.</p>	
DEUTSCH	ACHTUNG!	WICHTIGE SICHERHEITSHINWEISE
<p>Dieses System erfüllt den Sicherheitsstandard gemäß IEC/EN60950. Um einen sicheren Betrieb sowie Schutz vor Stromschlag oder Feuer zu gewährleisten, muss folgendes beachtet werden:</p> <ul style="list-style-type: none"> <li>• Dieses System verfügt über eine variable Stromversorgung. Stellen Sie sicher, dass die Stromquelle über die korrekte, für das System vorgeschriebene Spannung und Frequenz verfügt.</li> <li>• Jedes einzelne Gehäuse des Systems muss elektrisch geerdet werden, indem die Netzkabel an eine ordnungsgemäß verdrahtete und geerdete Steckdose angeschlossen werden.</li> <li>• Die Netzkabel, die mit diesem System geliefert werden, müssen wie folgt verdrahtet sein:</li> </ul>		
	Phase = Braun	Null = Blau
		Schutz = Grün/Gelb
	<p>Trennen Sie <u>alle</u> Netzkabel vom Gehäuse, bevor Sie die obere Gehäuseabdeckung entfernen. Wenn Sie diese Sicherheitsmaßnahmen nicht beachten, werden Sie gefährlicher elektrischer Spannung ausgesetzt. Wenn Sie mit dieser extrem gefährlichen elektrischen Spannung in Berührung kommen, kann dies zu Gesundheitsschäden oder sogar zum Tod führen. Die obere Gehäuseabdeckung sollte nur von geschultem Service-Personal entfernt werden.</p>	
	<p>Module, die mit diesem Symbol gekennzeichnet sind, können während des Betriebs (bei eingeschalteter Stromversorgung) entfernt werden. Wenn Sie ein Modul entfernt haben, schützen Sie sich vor elektrischer Spannung, die an der Anschlussdose innerhalb des Gehäuses freigesetzt wird. Berühren Sie die freigelegte Anschlussdose erst dann mit Fingern, Werkzeug oder Metallgegenständen, wenn die Stromzufuhr zum Gehäuse unterbrochen ist. Wenn Sie mit dieser extrem gefährlichen elektrischen Spannung in Berührung kommen, kann dies zu Gesundheitsschäden oder sogar zum Tod führen. Diese Module sollten nur von geschultem Service-Personal entfernt werden.</p>	
中文	警告!	重要安全注意事项
<p>本系统遵守安全标准 IEC/EN60950。为确保安全操作及防止电击或火灾危险，请遵守以下规定：</p> <ul style="list-style-type: none"> <li>• 本系统能够自动调整以适应供电情况。请确保贵处的电源符合本系统所要求的正确电压和频率工作范围。</li> <li>• 本系统中的每个机壳均必须接地，方法是将输入电源线连接到正确接线并接地的电源插座上。</li> <li>• 对于随本系统提供的输入电源线，必须按如下方式接线：</li> </ul>		
	载电线 = 棕色	中性线 = 蓝色
		地线 = 绿色/黄色
	<p>在从机壳取下顶盖之前，必须从机壳完全断开所有的输入交流电源线。否则将会暴露于危险电流及电压之下。身体接触这些电流和电压非常危险，并可能导致严重的人身伤害或伤亡！只有合格的服务人员才可以取下机壳的顶盖。</p>	
	<p>对于带有此标记的组件，可以在系统运行（带电）时取下。在取下组件之后，请当心机壳内组件插孔连接器上暴露的危险电流及电压。当机壳接通输入交流电时，请勿用手指、工具和外部金属物体接触裸露的插孔连接器。身体接触这些电流和电压非常危险，并可能导致严重的人身伤害或伤亡！只有合格的服务人员才能取下这些组件。</p>	

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# 1. Introduction



## In This Chapter

The following topics are covered in this chapter:

- [Introduction](#) ..... 1
- [How to Use This Guide](#) ..... 2
- [Contacting Abekas](#)..... 2
- [System Overview](#) ..... 3

## Introduction

This User Guide provides an installation and operational overview of the Abekas AirCleaner Digital Video/Audio Delay System. It provides the information necessary for system installation within a television facility, including all equipment interconnections. This guide also provides full operational information and descriptions for all menu settings in the AirCleaner user interface.

The following chapters provide instructions for all aspects of AirCleaner:

- This chapter, [“Introduction” on page 1](#) describes how to use this User Guide, and provides a complete system overview.
- Chapter 2, [“Installation” on page 5](#) provides details on AirCleaner power, cooling and airflow; site preparation, physical installation, and cable connections.
- Chapter 3, [“Maintenance” on page 23](#) provides instruction on some of the basic maintenance procedures for AirCleaner.
- Chapter 4, [“Operations” on page 45](#) describes in detail AirCleaner operations. A full listing of all user interface menus is included.



## How to Use This Guide

Following are several important tips for streamlining the use of this User Guide in its electronic form — as an Adobe Acrobat PDF file.

### Navigating and Searching

Use the bookmarks on the left side of Acrobat Reader to navigate to the desired location in the User Guide. All chapter files have the same bookmark structure for instant navigation to any section of the guide. In addition:

- Extensive hyperlinks are provided within the chapters for navigational ease.
- Use Acrobat's "Go to Previous View" and "Return to Next View" buttons to trace navigational path across files.
- Use the "Previous Page" and "Next Page" buttons to go to the previous or next page within the current file.
- As required, use Acrobat's On-Line Help file to familiarize yourself with all of Acrobat's navigational features.
- Acrobat provides incredible search capabilities. Use the "Find" tool to search for words in the currently open file, or use the "Search Index" tool to perform a complete search of all chapter files. Please use Acrobat's On-Line Help file to learn more about search functionality.

### Table of Contents and Index

Use the Table of Contents bookmarks to navigate to the desired topic. Click any item to instantly jump to that section of the User's Guide. Use the Index to jump to specific topics within any chapter. Each page number in the Index is a hyperlink.

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## Contacting Abekas

### AirCleaner Technical Support

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### In Writing

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Menlo Park, California 94025  
United States of America



## System Overview

This section provides a complete overview of the AirCleaner system.

### Description

AirCleaner is a solid-state, all-digital video and audio delay machine for use in live-to-air television broadcasts. AirCleaner is designed as a protection against “wardrobe malfunctions,” spoken profanities, or any type of unwanted broadcast content. AirCleaner offers multiple operating modes with the ability to mask video offenses with an auxiliary “safe” video source or a defocused live image. AirCleaner will mask audio offenses with an auxiliary “safe” audio source or with a mute. Refer to Chapter 4: [“Operations” on page 45](#) for more information.

AirCleaner can be operated with either one or two “screeners” (operators that censor the live audio/video feed). In the case of two-screener operation, the total program delay internal to AirCleaner can be divided between the two users (in any proportion desired).

AirCleaner operates with either High-Definition (HD) or Standard-Definition (SD) digital video, with all of the popular video formats supported. It’s equipped with two SD/HD SDI video inputs, two SD/HD SDI video outputs and has an analog reference input. AirCleaner handles eight channels (4 stereo pairs) of AES/EBU audio for each of the two video I/O streams. AirCleaner can also utilized digital audio that’s embedded in the digital video I/O streams.

**NOTE** *In SD 525 and 625 operation, AirCleaner supports only 4-track (two stereo pairs) of embedded digital audio, as defined by SMPTE specification.*

AirCleaner also features a single stereo analog audio monitoring output on a 3.5mm jack. Refer to Chapter 2: [“Installation” on page 5](#) for more information.

### System Options

AirCleaner comes in two model configurations. **Model 1** features 12 seconds of HD delay (which corresponds to 60 seconds of SD delay). **Model 2** features 6 seconds of HD delay (which corresponds to 30 seconds of SD delay). For both AirCleaner models, there are three system options available:

- Redundant Power Supply
- Panic Button Control Panel
- Panic Button “Y” Cable

#### *Redundant Power Supply*

This option allows for dual power supplies to guard against complete system failure in the event of a single power supply failure. The AirCleaner will run on a single power supply; however, when the redundant supply is fitted, both power



supplies share the power load. In the event one of the redundant power supplies fails, the remaining operational power supply will automatically take over complete power load for AirCleaner.

### ***Panic Button Control Panel***

The Panic Button Control Panel is a simple two-button user interface (one button for Video, the other for Audio) that sits on a desktop and is connected to the AirCleaner main chassis via a 9-pin cable.



**Figure 1-1.** *Panic Button Control Panel*

The Panic Button Control Panel is used to trigger the video and/or audio mask in the event of a visual or aural offense. Pressing the specific button (**AUDIO** or **VIDEO**) will tell AirCleaner to mask the content according to how the AirCleaner was previously programmed via the main chassis user interface. The masking will continue for the duration the button is held down.

The Panic Button Control Panel connects to the system mainframe via simple GPI connections. Most facilities will want to design their own Panic Button Control Panel to fit their workflow; however Abekas provides this option for those customers who don't wish to build their own control panels. The Panic Button Control Panel ships with a 33-foot shielded cable for connection to the GPI connector on the AirCleaner main chassis.

### ***Panic Button “Y” Cable***

In some instances, AirCleaner can be operated in a “two screener mode” which requires a second Panic Button Control Panel. In order to connect two Panic Button Control Panels to the AirCleaner main chassis, this customized “Y” cable is required. This “Y” cable is connected to the rear of the AirCleaner chassis, and then the control cables for each of the two Panic Button Control Panels are connected to the “Y” cable.

**NOTE** *All options ordered at time of sale will be installed and tested with the AirCleaner chassis. All options ordered after time of sale will ship with detailed installation instructions. If there are any questions regarding installation of these options, please contact Abekas technical support.*

**NOTE** *Pin-outs for the Panic Button “Y” cable are provided in [Chapter 2](#). These are simple GPI connections, easily built at the customer's site, thus allowing for more specific and custom installations.*

## 2. Installation




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### In This Chapter

The following topics are covered in this chapter:

- [Unpacking..... 5](#)
- [Cooling and Airflow ..... 6](#)
- [Power Consumption ..... 6](#)
- [Power Consumption ..... 6](#)
- [Video Connections..... 9](#)
- [Audio Connections ..... 11](#)
- [GPI, Ethernet & Power Connection ..... 13](#)

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### Unpacking

Remove the AirCleaner main chassis and Panic Button Control Panel (optional) from the packing boxes. Also remove the rack rails and any cables or other packaging that may be included. Inspect all articles for shipping damage. If any damage is found, please notify the shipping carrier immediately for claims adjustments.

Compare the shipping box contents to the packing slip. Contact your Abekas sales representative if there are any unexplained shortages.

2

## Cooling and Airflow

AirCleaner has two fans mounted in the front of the chassis, which force air from the front, through the chassis, with warm air exhausting out air vents located on the rear panel. These fans should be periodically checked to ensure they are operating properly; the front and rear air vents should be kept clean and clear at all times.

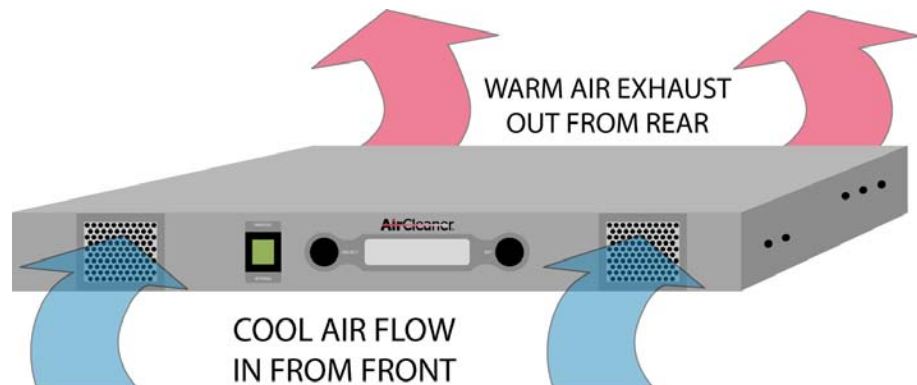


Figure 2-1. AirCleaner Chassis Airflow

The Panic Button Control Panel has no special cooling or airflow considerations.

## Power Consumption

The AirCleaner main chassis consumes a maximum of 300 watts (average operating power is about 60 watts). An optional redundant power supply is available; when it's installed and in operation, the main and redundant power supplies will share the power load equally and will therefore not change the overall power consumption.

There is no AC power connection to the Panic Button Control Panel.

**WARNING** *AirCleaner uses open-module power supplies with:*

**UNUSUALLY HIGH CURRENT and VOLTAGES!**

*The power supplies should NEVER have external AC power connected when the chassis top cover is removed.*

**Risk of DEADLY electrical shock is EXTREMELY HIGH!**

*Always remove all AC power from main chassis BEFORE removing the chassis top cover. For units fitted with the redundant power supply option, be sure to remove BOTH AC power cords.*



## Chassis Dimensions



The AirCleaner chassis weighs approximately 10 pounds (4.53 kg) and is one RU in height.

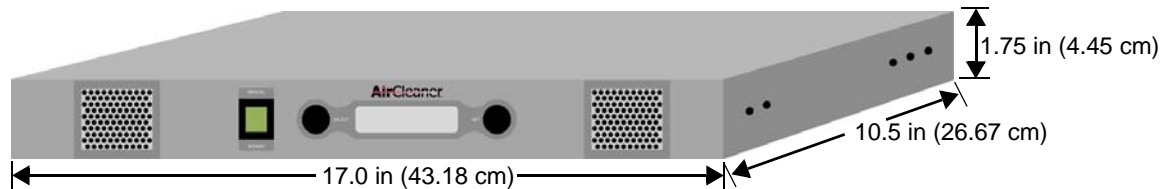


Figure 2-2. AirCleaner Chassis Dimensions

## Chassis Rack Mounting

Each AirCleaner comes with rack ears for the front, and rack rails for mounting the rear of the chassis into a rack. All necessary hardware for mounting these pieces to the AirCleaner chassis is included. Rack screws are not included. With the rack ears in place, the total chassis width is 19.0 inches (48.26 cm). The chassis is 1RU in height (1.75" = 26.67cm).

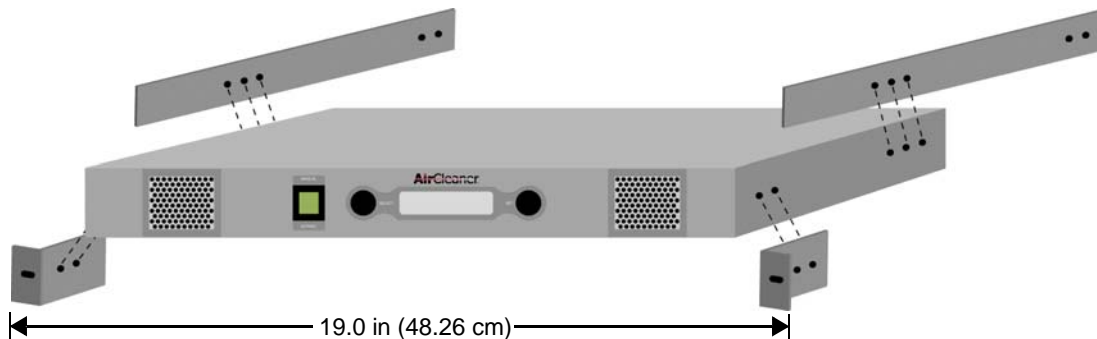


Figure 2-3. Chassis Rack Mountings

## 2

### Panic Button Control Panel Mounting

The Panic Button Control Panel option is designed to sit on a console or table top, and has no special mounting or cooling instructions. The dimensions of the panel include the rubber feet on the underside of the Panic Button Control Panel.

One or two Control Panels can be attached to a single AirCleaner chassis.

Dimensions: 6.25" W x 4.10" D x 3.10" H

Metric Dimensions: 15.87cm W x 10.4cm D x 7.87cm H



Figure 2-4. Panic Button Control Panel

## Video Connections

2

All video inputs and outputs (with the exception of REF IN) are serial digital (SDI) and all must operate with the same video line standard at the same time.

All video connections are provided on female BNC. Each BNC has an LED associated with it and in the case of inputs (PGM IN, AUX IN and REF IN), will illuminate solidly when an input is detected and locked. If the LED is not illuminated or is flashing, then a problem is detected. The SDI digital video outputs (PGM OUT and TAP OUT) have LED's that are illuminated whenever power is on.

**NOTE** *All video inputs and outputs can also accept embedded digital audio and are user selectable. Refer to [Chapter 4 - Operations](#) for more information.*

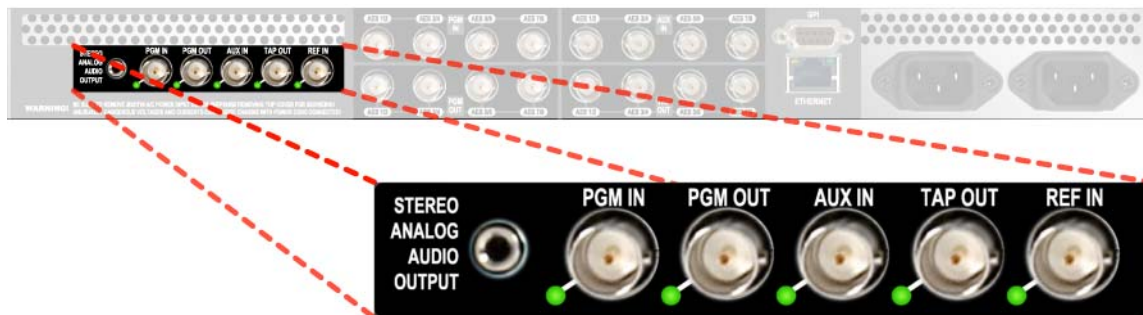


Figure 2-5. Rear Panel Video Connections

### PGM IN – Video (Live Video Input)

This is the main program digital video input feed that will be delayed by AirCleaner.

This digital video input can be either Standard-Definition (SMPTE 259M / EBU-Tech 3267-E) or High-Definition (SMPTE 292M). The programmed video format of this video input will always follow the configuration of the video output. This digital video input can carry up to eight tracks (four stereo pair) of embedded digital audio.

### PGM OUT – Video (Delayed Video Output)

This is the delayed “Live to Air” serial digital video output, which will feed the transmission path.

This digital video output can be either Standard-Definition (SMPTE 259M / EBU-Tech 3267-E) or High-Definition (SMPTE 292M). The video format and line standard for this output is configured in the Option Menu; this selection will be the same for all the video inputs and outputs. This digital video output can carry up to eight tracks (four stereo pair) of embedded digital audio.

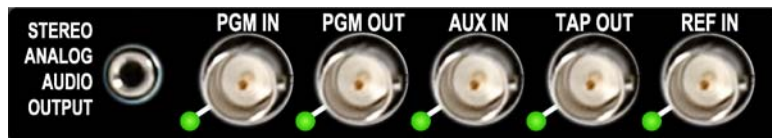


Figure 2-6. Rear Panel Video Connection Close-Up

### AUX IN – Video

(“Safe” Video Input)

When the AirCleaner is programmed to switch to the auxiliary input during a VIDEO Panic Button press, this is the “Safe” digital video input into AirCleaner that is used for the safe feed. If AirCleaner is programmed to defocus the video during a VIDEO Panic Button press, then this input is not used.

This digital video input can be either Standard-Definition (SMPTE 259M / EBU-Tech 3267-E) or High-Definition (SMPTE 292M). The programmed video format of this video input will always follow the configuration of the video output. This digital video input can carry up to eight tracks (four stereo pair) of embedded digital audio.

### TAP OUT – Video

(Screener 2 Monitor Video Output)

This digital video output is used only during “two screener” modes, in which there are two separate users that are operating in series. This video output is downstream from the video delay used by the first screener, and is used by the second screener to monitor the video coming in to the second screener’s video delay pathway.

This digital video output can be either Standard-Definition (SMPTE 259M / EBU-Tech 3267-E) or High-Definition (SMPTE 292M). The video format and line standard for this output is configured in the Option Menu; this selection will be the same for all the video inputs and outputs. This digital video output can carry eight tracks of embedded digital audio.

#### NOTE

*All video inputs and outputs can also accept embedded digital audio and are user selectable. Refer to [Chapter 4 - Operations](#) for more information.*

### REF IN

(Reference Input)

This input to AirCleaner accepts an external analog reference signal, either Bi-Level or Tri-Level, that must match the frame rate of the incoming video signal. SD video can only be locked to a Bi-Level external reference signal (or to the video input or free run). HD video can be locked to either Tri-Level or Bi-Level reference, as long as the frame rate of the video and the reference signal are matched.

The reference signal will lock both the PGM OUT and TAP OUT together in time with the reference signal. The reference input is internally terminated (no loop-thru).

Reference can also be programmed to lock to the video signal present on the PGM IN or the AUX IN. There is also a reference “Free Run” selection. All reference selections are made in the Option Menu.

## Audio Connections

2



Figure 2-7. Rear Panel AES Audio Connections.

This section describes the digital audio signal connectors on the rear of the AirCleaner chassis. Refer to [Chapter 4 - Operations](#) for more information. This jack field provides 8-track (4 stereo pair) of AEX/EBU digital audio for each digital video input and output. The AES audio supported is 48kHz sampling with 24-bit resolution. All digital audio connections are provided on female BNC. AirCleaner also has one analog stereo output, provided on a 3.5mm jack.

**NOTE** *All SD and HD SDI digital video inputs and outputs can also accept embedded digital audio as the digital audio I/O. Refer to [Chapter 4 - Operations](#) for more information.*

### STEREO ANALOG AUDIO OUTPUT

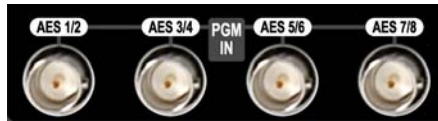


This 3.5mm female stereo jack provides monitoring of analog audio output. In the AirCleaner user interface, a selection can be made to monitor any stereo pair from the PGM OUT audio output. The output level is 0dBmV. The Analog Audio OUT parameter in the Main Menu controls the audio source selection for this output jack; while the Analog Audio Vol parameter controls the volume.



### PGM IN – Audio

(AES 1/2, AES 3/4, AES 5/6, AES 7/8)  
(Live Audio Input)



This is the digital audio input that is associated with the PGM IN digital video input that will be delayed by AirCleaner.

### PGM OUT – Audio

(AES 1/2, AES 3/4, AES 5/6, AES 7/8)  
(Delayed Audio Output)



This is the delayed “Live to Air” digital audio output, which is associated with the PGM OUT digital video output.

### AUX IN – Audio

(AES 1/2, AES 3/4, AES 5/6, AES 7/8)  
(“Safe” Audio Input)



When the AirCleaner is programmed to switch to the auxiliary input during an AUDIO Panic Button press, this is the “Safe” digital audio input into AirCleaner that is used for the safe feed. If AirCleaner is programmed to mute the audio during an AUDIO Panic Button press, then this input is not used.

### TAP OUT – Audio

(AES 1/2, AES 3/4, AES 5/6, AES 7/8)  
(Screener 2 Monitor Audio Output)



These digital audio outputs are used only during “two screener” modes, in which there are two separate users that are operating in series with AirCleaner. These audio outputs are downstream from the audio delay used by the first screener, and are used by the second screener to monitor the audio coming in to the second screener’s audio delay pathway.

## GPI, Ethernet & Power Connection



This section describes the remainder of the rear panel connections on AirCleaner, including the GPI and Ethernet connectors, and the AC power inputs.

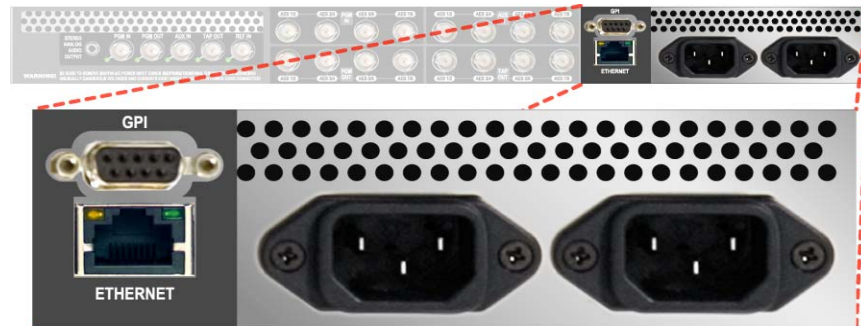


Figure 2-8. Rear Panel GPI, Ethernet and AC Power connections.

### GPI Connector

The General Purpose Interface (GPI) connector features four GPI input triggers (no output triggers are provided). The GPI port is used with the optional AirCleaner control panel, which provides a method to trigger screening operations for either audio, video or both. One may also construct their own triggering mechanism in place of the optional AirCleaner control panel. For example, two hand-held trigger buttons could be constructed and wired to the GPI port to trigger the screening operations.

The normal state of each GPI input is the “open” state; to activate any of the GPI inputs, a “dry” contact closure is required.

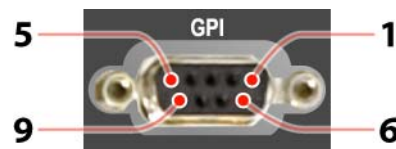


Figure 2-9. GPI Connector Pinout

Table 2-1 on page 14 provides the pin-outs for the GPI connector. Using this wiring chart, a customized cable can be wired for a custom control panel for AirCleaner.

Each GPI input trigger should be provided by a momentary, normally open switch that connects between the given input pin and the ground pin (Pin 9). For example, the Screener 1: VIDEO Panic Trigger switch is connected between pin 1 and pin 9 on the GPI connector.





Only pin 9 should be used to provide the ground connection.

Table 2-1. GPI Connector Pinouts

Pin	Function
1	Screener 1: VIDEO Panic Trigger IN
2	Screener 1: AUDIO Panic Trigger IN
3	Screener 2: VIDEO Panic Trigger IN
4	Screener 2: VIDEO Panic Trigger IN
5	Unused
6	Unused
7	Unused
8	Unused
9	Signal Ground

**NOTE** *Users wanting one button to trigger both audio and video simultaneously can simply run the switch to both corresponding GPI input connections.*

## Ethernet Port

This 10/100-BaseT Ethernet Port provides a convenient means to update AirCleaner's operating software and to update the firmware for the audio/video I/O card inside AirCleaner.



Figure 2-10. GPI Ethernet Port

There are two l.e.d.s on either side of the Ethernet port; the left l.e.d. is amber, the right l.e.d. is green. These two l.e.d.s indicate the following:

- Amber OFF: No external Ethernet communications.
- Amber ON Steady: External Ethernet communications established.
- Green OFF: No power to the Ethernet module; due to no power to the AirCleaner chassis.
- Green ON Steady: Ethernet module CPU is being reset.
- Green ON Flashing: Ethernet module CPU is operating normally.





The Ethernet Port is configured at the factory with the following default values:

- Ethernet IP Address      192.20.200.240
- Subnet Mask                255.255.255.0
- Gateway                    0.0.0.0

To connect AirCleaner to your local area network (LAN), you will most likely need to change the IP Address, and perhaps the subnet mask and gateway settings...

### *Changing the Ethernet Port Settings*

In order to change AirCleaner's Ethernet Port settings for the first time, you will need to temporarily connect an external PC that is running the Windows operating system to the AirCleaner with a "cross-over" Ethernet cable. This cross-over cable is a CAT-5 Ethernet cable that has the receive and transmit lines reversed, so you can cross-connect two pieces of equipment without an external network.

Also, the Ethernet IP Address on this Windows PC will need to be temporarily changed to match the factory default Ethernet sub-net of the AirCleaner. This change in the Windows PC is temporary, and will be undone later in this procedure.

**NOTE** *You must have "administrative rights" on the Windows PC compute in order to perform this procedure. If you don't have administrative rights, then please contact the system administrator for the Windows PC.*

1. On your Windows PC, click the **START** button in the taskbar.
2. In the pop-up window that appears, click the "**Control To**" item, and then click the "**Show all connections**" in the menu listing:



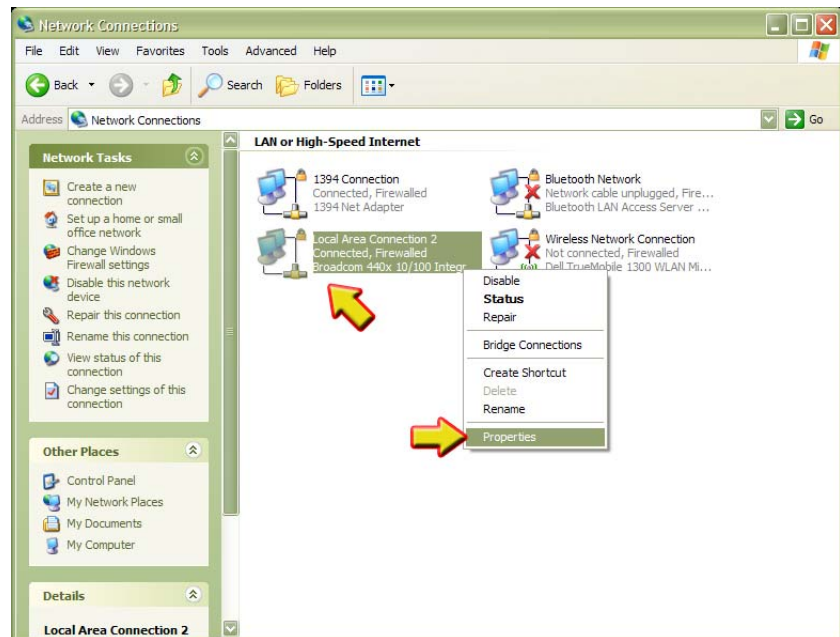
## 2. Installation

GPI, Ethernet & Power Connection

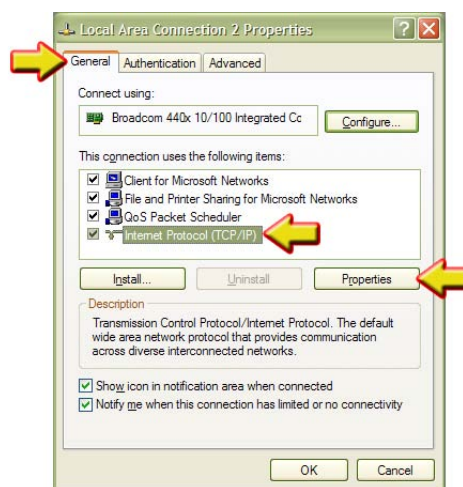
**Abekas**



3. In the **Network Connections** window that appears, RIGHT-CLICK your mouse on the “**Local Area Connection**” item (*this item may have been re-named in your computer; click on the item that represents the Ethernet port in your computer*).
4. In the pop-up menu that appears, select the “**Properties**” item:



5. The “**Properties**” window will appear; in the “**General**” tab, select the “**Internet Protocol (TCP/IP)**” item.
6. ...then click the “**Properties**” button.



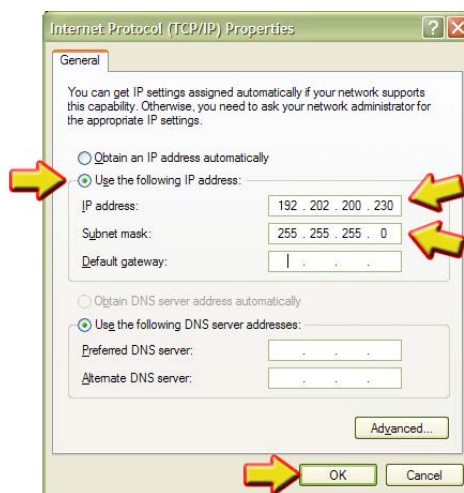
7. The “**Internet Protocol (TCP/IP) Properties**” window appears, as shown below.



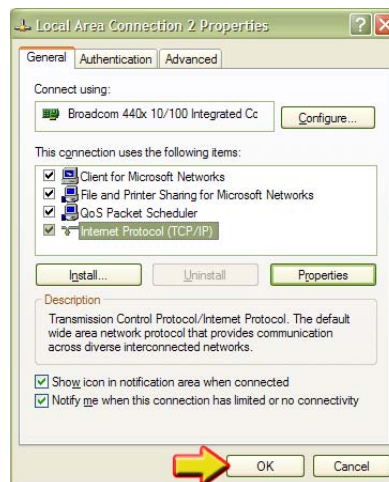
8. Check this window, and see if the “**Use the following IP address**” radio button is selected or not (see below). If this radio button is **ALREADY** selected, then write down the **FIVE** values that appear in this window. You will need to re-enter these values later in this procedure.

If instead the “**Obtain an IP address automatically**” radio button is currently selected, then there are no values you need to write down.

9. Click the “**Use the following IP address**” radio button.
10. In the “**IP address:**” entry field, type “**192.20.200.230**” as shown below.
11. In the “**Subnet mask:**” entry field, type “**255.255.255.0**” as shown below.
12. The other entry fields can remain blank; click the “**OK**” button when finished.



13. Click the “**OK**” button in the “**Properties**” window, which save the values and closes this window.



14. Connect one end of a “**Cross-Over**” Ethernet cable to the Ethernet port on your Windows PC, and the other end to the Ethernet port on the AirCleaner chassis.
15. Apply power to AirCleaner (if it’s not already powered).

## 2. Installation

GPI, Ethernet & Power Connection

**Abekas**



16. From the Windows PC, launch Internet Explorer web browser.

17. In the “**URL Address**” line of the browser window, type the web address of the AirCleaner (followed by **ENTER**):

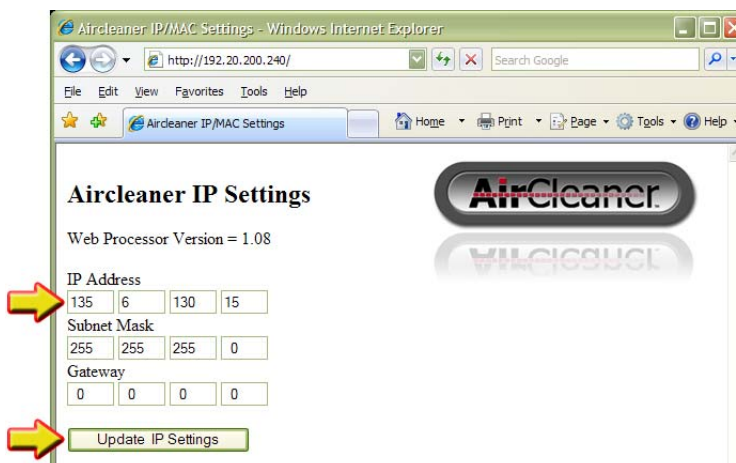
- <http://192.20.200.240/>

The web page for AirCleaner will appear in the browser, as shown below.



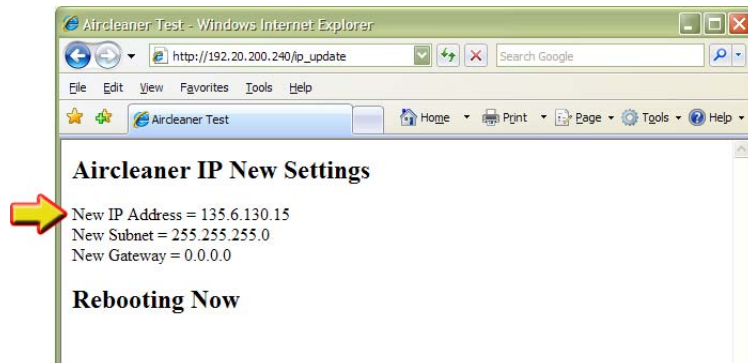
18. In the “**IP Address**” entry field, type the desired IP Address, to match the subnet and desired device number for AirCleaner in your LAN. In the sample illustration below, “**135.6.130.15**” is entered.

19. Click the “**Update IP Settings**” button in the AirCleaner web page to begin the IP Address save operation. See the next page for reboot status information.





20. Within a few seconds, the AirCleaner web page will change to indicate the AirCleaner Ethernet module is being rebooted, as shown below. The new IP Address will be listed, as indicated by the arrow in the illustration. The reboot



will take approximately 45 seconds to complete.

21. As of the writing of this manual, there is no internal communication between the Ethernet module and the front panel LCD display inside AirCleaner. Therefore, the only status indicator for the IP Address save & reboot operation are the two l.e.d.s above the Ethernet connector on the AirCleaner rear panel.



These l.e.d.s provide the reboot status as shown in the table below.

Table 2-1. Ethernet Port LED indicators for AirCleaner reboot status

Function	Left (Amber) L.E.D.	Right (Green) L.E.D.
Begin Reboot	ON	Blinking
~10 Seconds	ON	ON or OFF
~15 Seconds	ON	ON
~35 Seconds	OFF	ON
~37 Seconds	ON	ON
~45 Seconds	ON	Blinking

22. After waiting 45 seconds and seeing the Ethernet amber l.e.d. is ON solid, with the green l.e.d. blinking, disconnect the cross-over Ethernet cable between the AirCleaner and your Windows PC.
23. Reset the IP Address and Subnet Mask (if required) in your Windows PC, according to the values you had noted in step (8.) on page 17 above.
24. Connect AirCleaner to your local Ethernet LAN using a standard Ethernet cable (NOT a cross-over cable!).

## 2. Installation

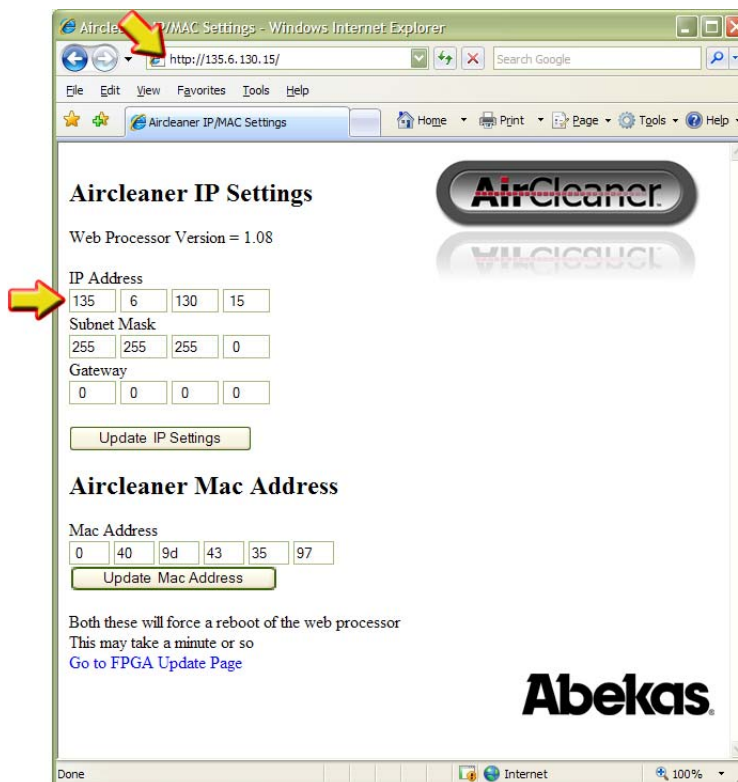
GPI, Ethernet & Power Connection

**Abekas**



25. On the Windows PC, type the new IP Address of AirCleaner into the web browser URL Address line, followed by ENTER to display the AirCleaner web page.

This verifies you've properly updated the AirCleaner IP Address:



Please refer to [“Updating Software & Firmware” on page 27](#) for the procedure to update AirCleaner’s software and/or firmware.

### AC Power Input

AirCleaner features up to two AC power input receptacles, to handle the redundant power supply option. If by chance AirCleaner is not configured with the redundant supply option, the AC receptacle nearest the outside edge of the chassis (the RIGHT plug, when viewing the chassis from the rear) will be fitted, while the other will be covered up with a metal cover plate.



Each power supply is auto-sensing and runs from a minimum of 100VAC/3.0A to a maximum of 240VAC/1.5A, from 50Hz to 60Hz. When two power supplies are installed, the power load is shared between the two supplies; if one supply were to completely fail, the other power supply will automatically take over the full power load, and is capable of fully running the AirCleaner.



## Panic Button Control Panel

(Option)

2

The Panic Button Control Panel (Abekas part number 9500-0978-00) is a simple control panel with two push buttons that each provide a GPI contact closure (one for AUDIO, one for VIDEO), all mounted in a small desktop enclosure.

This control panel contains no active electronics, and therefore requires no external power to operate.

It's possible to connect either one or two Control Panels to a single AirCleaner chassis.

### One Control Panel

A single Panic Button Control Panel (for Screener 1) is connected to the GPI connector on the AirCleaner chassis, via the 33' cable that is supplied with the Control Panel. Please refer to Figure 2-11 below.

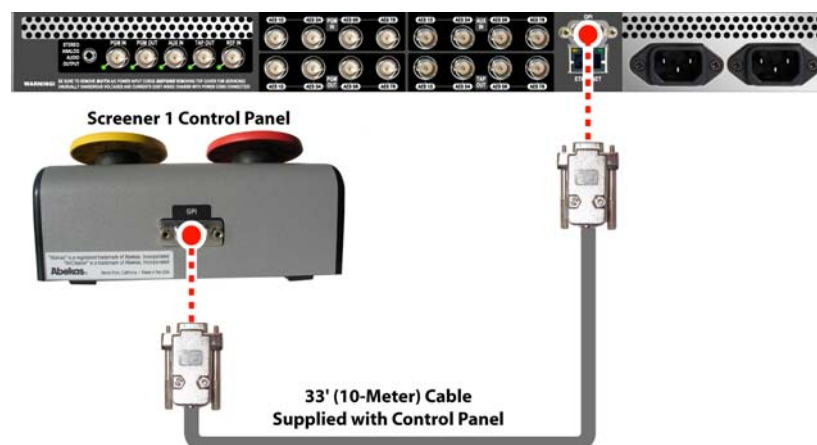


Figure 2-11. Panic Button Control Panel Connection - One Control Panel



## Two Control Panels

If two Panic Button Control Panels are being used on the same AirCleaner chassis (for Two-Screener operation), then the optional Panic Button “Y” Cable (Abekas part number 9000-0990-00) must be used to interface between the GPI connector on the AirCleaner chassis, and the two 33ft cables for each Panic Button Control Panel (supplied with each Control Panel). Please refer to Figure 2-12 below.

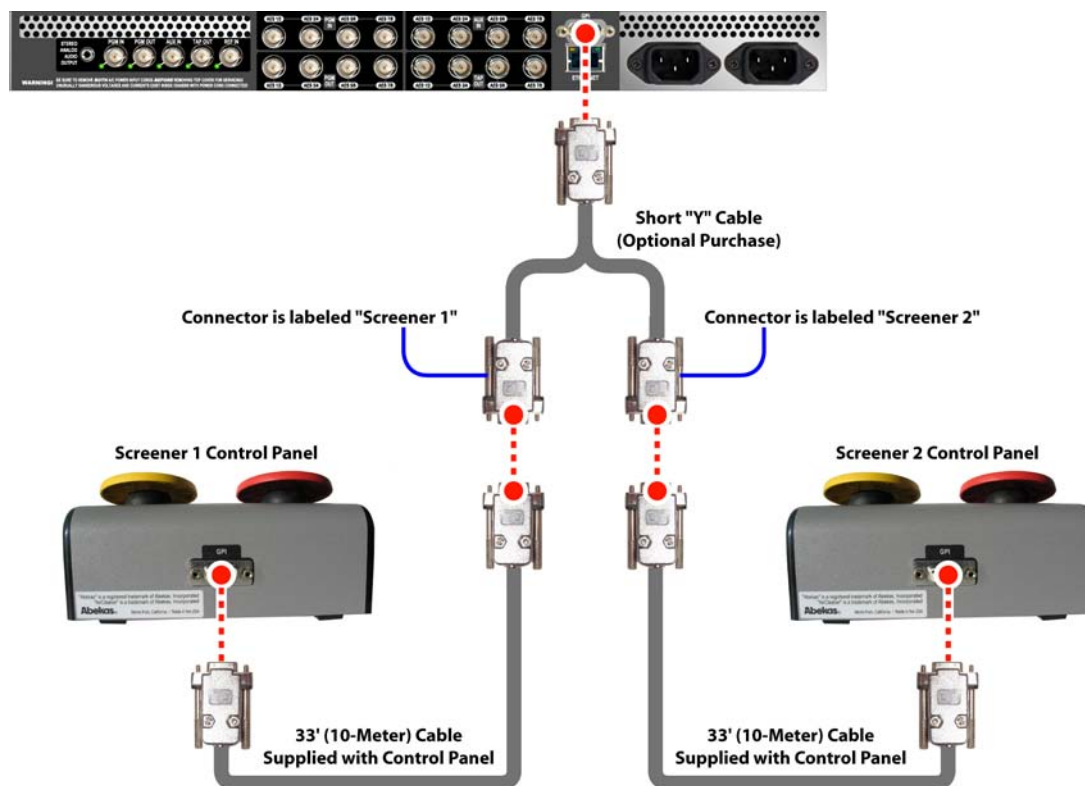


Figure 2-12. Two Panic Button Control Panels and “Y” adapter cable connection.

## Panic Button Control Panel Cable

(Supplied with Panic Button Control Panel Option)

The cable supplied with each Panic Button Control Panel is 33 feet (10 meters) in length (Abekas part number 9000-0995-00). This cable can be substituted with any “9-pin D” to “9-pin D” cable with male connectors at both ends. The maximum length is 500 feet (152 meters) when using 22 gauge wires; the wiring is “straight-through” pin-for-pin (no crossovers); this is the same wiring used in a standard RS422 9-pin D serial cable.

## Panic Button “Y” Cable

(Option)

This option is used to connect two Panic Button Control Panels to the same AirCleaner GPI connection. The “Y” cable connects to the GPI connector on the AirCleaner chassis. Then two individual Panic Button Control Panels are connected to each end of the “Y” cable; one panel for Screener 1 the other panel for Screener 2. Each connector on the “Y” Cable is labeled accordingly.



## 3. Maintenance



### In This Chapter

The following topics are covered in this chapter:

- [Primary Circuit Boards](#) ..... 23
- [Removing AirCleaner Top Cover](#) ..... 24
- [Power Supply Replacement](#) ..... 25
- [Inspection](#) ..... 26
- [Power Up / Power Down AirCleaner](#) ..... 26
- [Performing a Factory Reset](#) ..... 26
- [Updating Software & Firmware](#) ..... 27

### Primary Circuit Boards

The interior of AirCleaner is rather simple, consisting of just two circuit boards: the System Board (Abekas part number 9400-0972-00), which handles the AES digital audio I/O and voltage regulation; and the Sequoia Graphics Board (Abekas part number 9400-0956-03) which handles digital video I/O, reference and memory for AirCleaner. These boards interconnect with a custom multi-pin ribbon connector. Every input and output (for audio and video) is equipped with a hardware relay that will route the input source directly to the output in the event of a complete power supply failure. There is also a front panel button on the AirCleaner chassis (labeled BYPASS) for manual operation of this relay. Refer to [Chapter 4 - Operations](#) for more information.

The Sequoia board also has the system Field-Programmable Gate Array (FPGA) and the SO/DIMM memory that's used for the delay circuitry. This memory determines the amount of delay in the system. There are 2 types of Sequoia boards:

- **AirCleaner Model 1**      Features 12 seconds of HD delay and 60 seconds of SD delay (Abekas part number 9900-0310-00).
- **AirCleaner Model 2**      Features 6 seconds of HD delay and 30 seconds of SD delay (Abekas part number 9900-0311-00).

3

## Removing AirCleaner Top Cover

**WARNING** AirCleaner uses open-module power supplies with:

**UNUSUALLY HIGH CURRENT and VOLTAGES!**

*The power supplies should NEVER have external AC power connected when the chassis top cover is removed.*

**Risk of DEADLY electrical shock is EXTREMELY HIGH!**

*Always remove all AC power from main chassis BEFORE removing the chassis top cover. For units fitted with the redundant power supply option, be sure to remove BOTH AC power cords.*

If the top cover of the AirCleaner chassis must be removed for purposes of servicing the machine, please follow this procedure:

1. Remove the AirCleaner chassis from the rack (if so mounted) and place the chassis on a static-free work surface.
2. Remove the (4) philips-head screws from the REAR EDGE of the top cover.
3. SLIDE top cover towards REAR of chassis.
4. Top cover can now be lifted and removed.

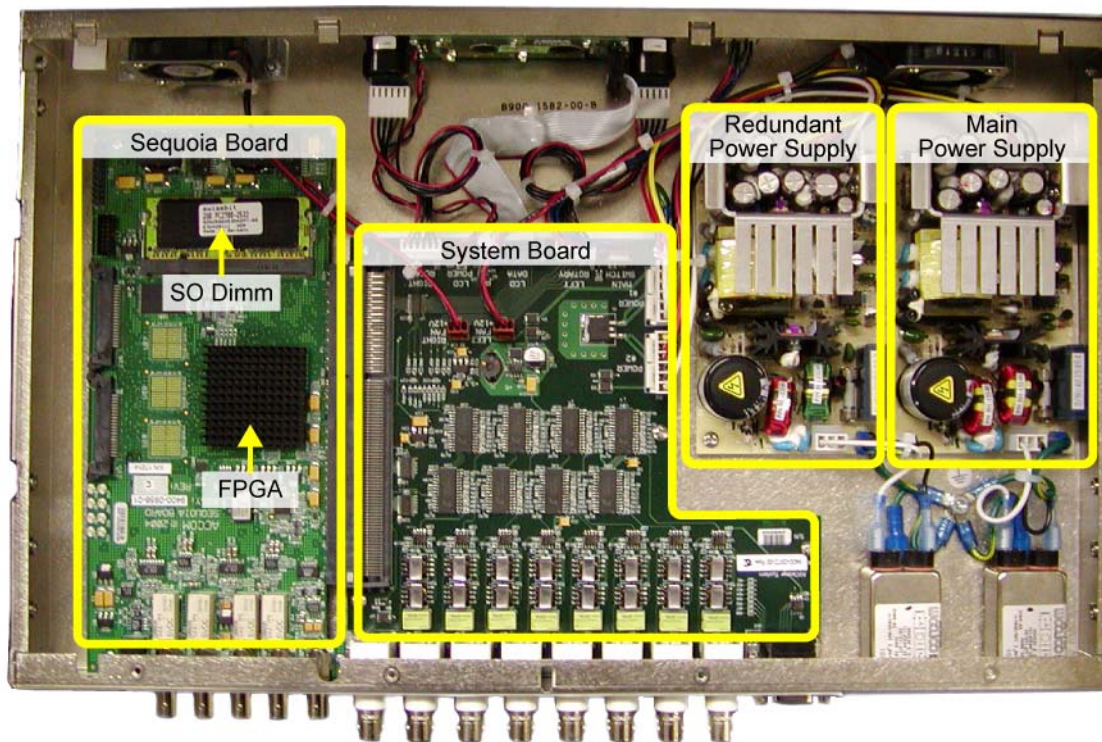


Figure 3-1. AirCleaner Chassis Interior

### Power Supply Replacement



Be sure all external AC power connections are removed from the rear of the AirCleaner chassis BEFORE attempting to remove the power supply.

#### **WARNING**

*These are open-module power supplies with*

#### **UNUSUALLY HIGH CURRENT and VOLTAGES!**

*The power supplies should NEVER have external AC power connected when the chassis top cover is removed.*

#### **Risk of DEADLY electrical shock is EXTREMELY HIGH!**

*Always remove all AC power from main chassis BEFORE removing the chassis top cover. For units fitted with the redundant power supply option, be sure to remove BOTH AC power cords.*

1. Remove AirCleaner from rack and place on static-free work surface.
2. Remove chassis top cover (See ["Removing AirCleaner Top Cover"](#) on page 24); determine which power supply needs to be replaced; see Figure 3-2 below.
3. Remove 6-pin plug from front of power supply (see below).
4. Remove 3-pin plug from rear of power supply (see below).
5. Unscrew and disconnect the grounding wire, located next to the 3-pin plug.
6. Remove the (4) phillips-head screws that hold down the power supply module.
7. Lift out the power supply module.

Reverse the procedure when installing the new power supply module.

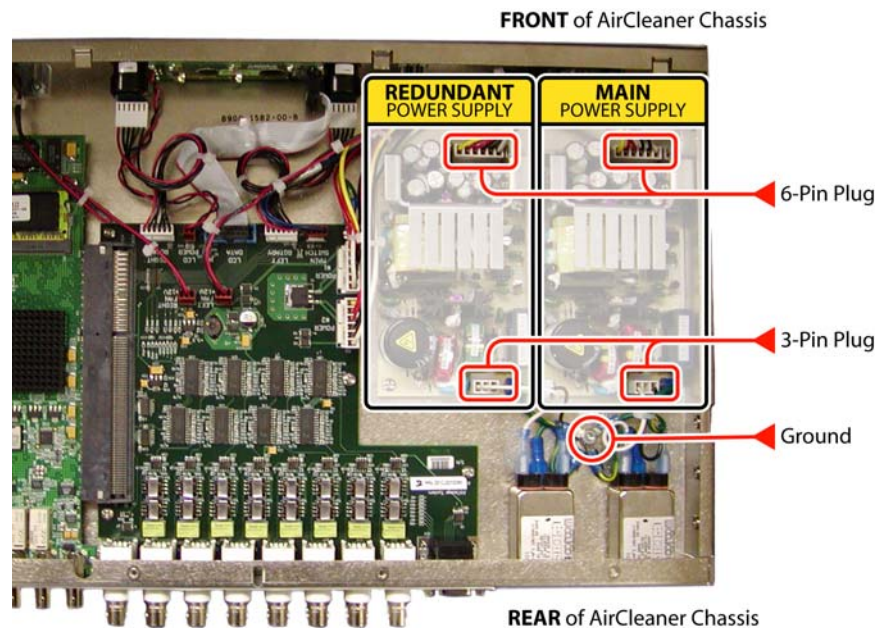


Figure 3-2. Power Supply Module - Location



## Inspection

Ensure all cables are connected and manually check both fans for ease of rotation. Be sure to keep the interior of AirCleaner dust-free. There are NO internal jumpers or switches for user settings.

## Power Up / Power Down AirCleaner

AirCleaner is designed to operate 24/7/365 and is not equipped with a power supply switch. When an active AC power cord is connected to the AC power receptacle, AirCleaner will power ON and boot up. To turn OFF, disconnect the AC power cord.

When redundant power supplies are installed in AirCleaner, BOTH power cords must be removed in order to power down AirCleaner.

## Performing a Factory Reset

All AirCleaner menus and settings can be returned to their factory default through the Main Menu in the front-panel user interface.

### **WARNING DO NOT LOAD FACTORY DEFAULTS WHILE "ON-AIR"**

*Since loading the Factory Defaults can change the video format of AirCleaner, as well as change other parameters that can severely disrupt the audio/video output from AirCleaner, the Factory Defaults should NEVER be loaded while using AirCleaner live on the air!*

1. Select the User Memory Menu in the menu display, as described in the paragraph ["Navigate to the Options Menu" on page 70](#).
2. TURN the SELECT knob to select the **Factory Defaults** item in the Options Menu:

```
Factory Defaults
Select >
```

3. PUSH the SET knob (for **Select >**).
4. The following message appears in the LCD:

```
Restore All?
< OK      EXIT >
```

5. PUSH the SELECT knob (for **OK >**) to confirm.

AirCleaner will recall all of the factory defaults, and return to the first parameter in the Main Menu.



## Updating Software & Firmware

Updating the software and firmware inside AirCleaner is achieved via the built-in Ethernet port, located on the rear panel of the AirCleaner chassis. The Ethernet Port is configured at the factory with the following default values:

- Ethernet IP Address     192.20.200.240
- Subnet Mask             255.255.255.0
- Gateway                 0.0.0.0

To connect AirCleaner to your local area network (LAN), you will most likely need to change the IP Address, and perhaps the subnet mask and gateway settings. To do so, please refer to [“Changing the Ethernet Port Settings” on page 15](#) for the procedure to change these parameters, then continue with the procedure below.

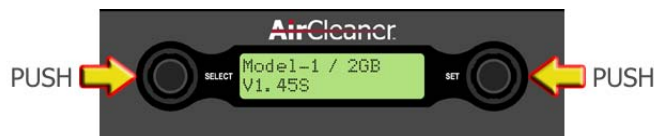
The software/firmware update process include three separate procedures, which are detailed in the following pages of this manual:

- Download and Unzip Files (This page)
- Transfer Files (On page 30)
- Web Page Programming (On page 41)

### *Updating AirCleaner Software/Firmware - Download and Unzip Files*

After you’ve changed AirCleaner’s Ethernet port settings and placed it on your LAN, perform the following procedure to update AirCleaner’s software.

1. Press and release both the “SELECT” and “SET” rotary knobs at the same time on the front of the AirCleaner chassis; this will present the current software version and the model of your AirCleaner in the front panel LCD menu display:



Make note of the model of your AirCleaner. In the example above, the machine is “Model-1” with “2GB” of memory. You will need this information to download the appropriate software/firmware from the Abekas FTP site.

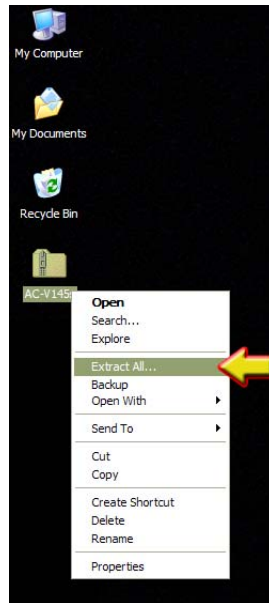
2. With a Windows PC connected to the Internet and to AirCleaner via Ethernet, point a web browser to the following directory on the Abekas FTP site:
  - <ftp://ftp.abekas.com/abekas/software/AirCleaner/>
3. Once this folder is found, select the appropriate ZIP file with the desired software/firmware, as noted in step (1.) above. The download files will be named either:
  - “N.NNN\_1GB.zip”
  - “N.NNN\_2GB.zip”

...on the FTP site (these filenames will vary, depending on the software/firmware version; where “N.NNN” is the software/firmware version number).

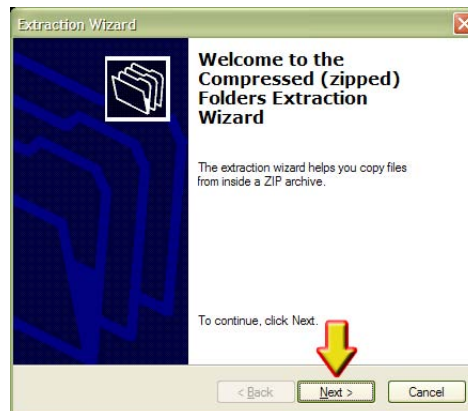




4. Select “Save As” in your web browser and copy the desired ZIP file to the **Windows PC desktop**.
5. On the Windows PC desktop, **right-click** on the downloaded ZIP file, as shown in the illustration below.
6. Select the “**Extract All...**” option in the pop-up menu that appears:



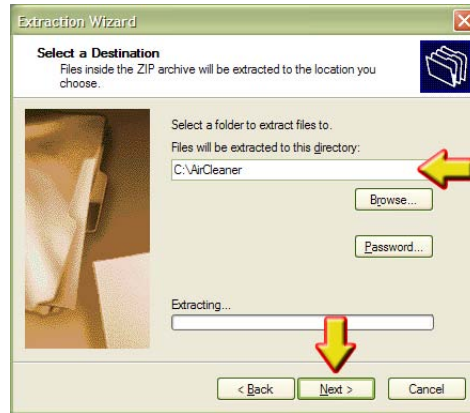
7. The Extraction Wizard window appears. Click the “**Next**” button to continue:



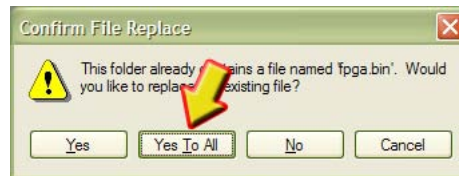
8. In the entry field provided (shown at top arrow in the illustration below), type:

- C:\AirCleaner

9. ...then click the “**Next**” button in the Extraction Wizard window:

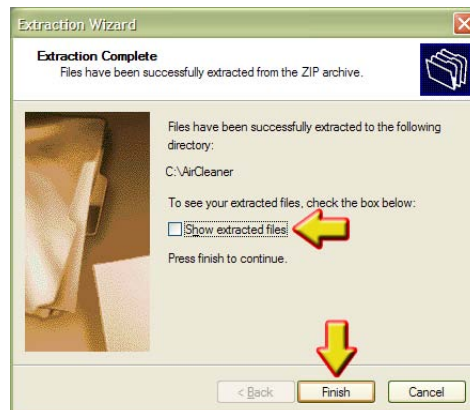


10. The following pop-up window MAY or MAY NOT appear. If it does appear, click the “**Yes To All**” button, as shown:



11. **Uncheck** the “**Show extracted files**” checkbox in the Extraction Wizard window, as shown in the illustration below.

12. Click the “**Finish**” button in the Extraction Wizard window:



**NOTE** *After successfully extracting the files, you may delete the ZIP file from the Windows PC desktop, or file it away, if desired.*

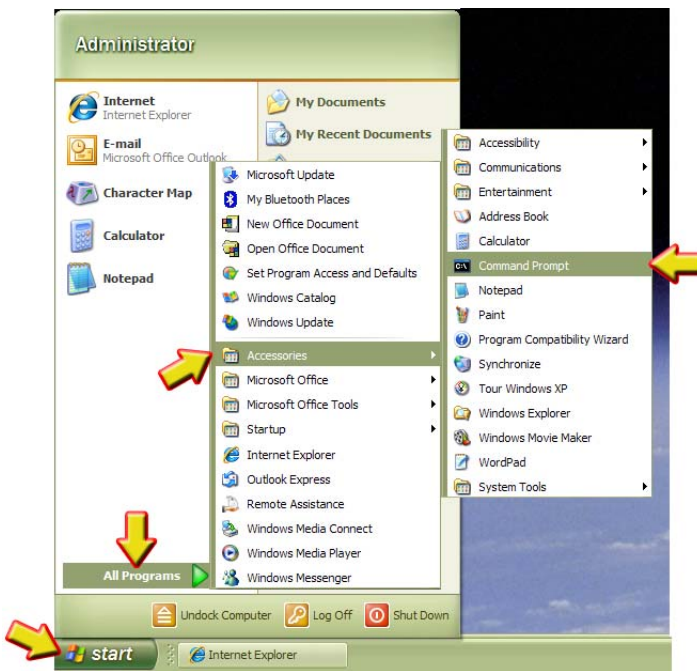
13. The ZIP file extraction process is now finished; please continue with the “**Transfer Files**” procedure on the following page...



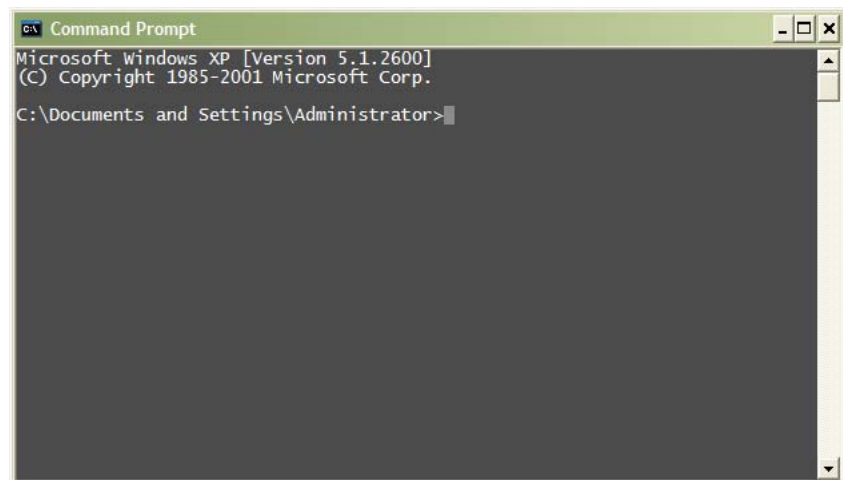
### Updating AirCleaner Software/Firmware - Transfer Files

After you've successfully downloaded and unzipped the software/firmware files (See ["Updating AirCleaner Software/Firmware - Download and Unzip Files" on page 27](#)), you're ready to transfer the files from your Windows PC to AirCleaner.

1. In the Windows Taskbar, click the **START** button.
2. Click the **"All Programs"** item in the menu list.
3. Click the **"Accessories"** item in the menu list.
4. Click the **"Command Prompt"** item in the menu list:



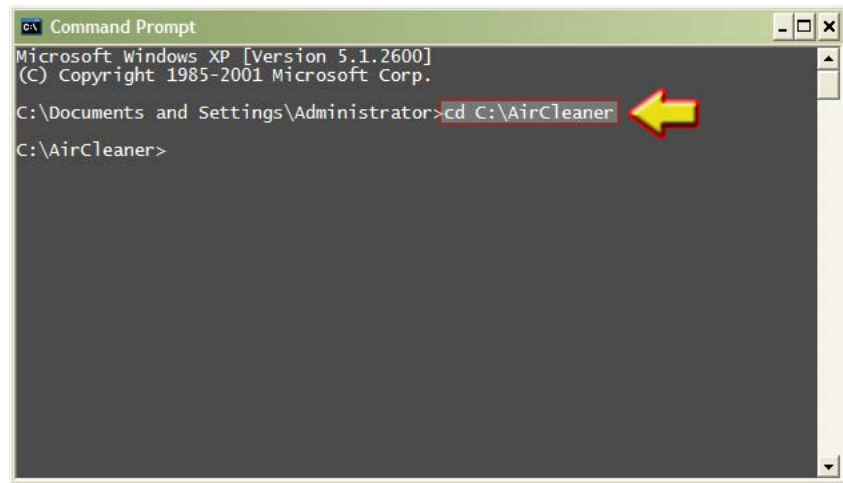
5. These actions open the **Command Prompt** window, as shown below:





6. Type the following command (*followed by ENTER*):

- `cd C:\AirCleaner`



```

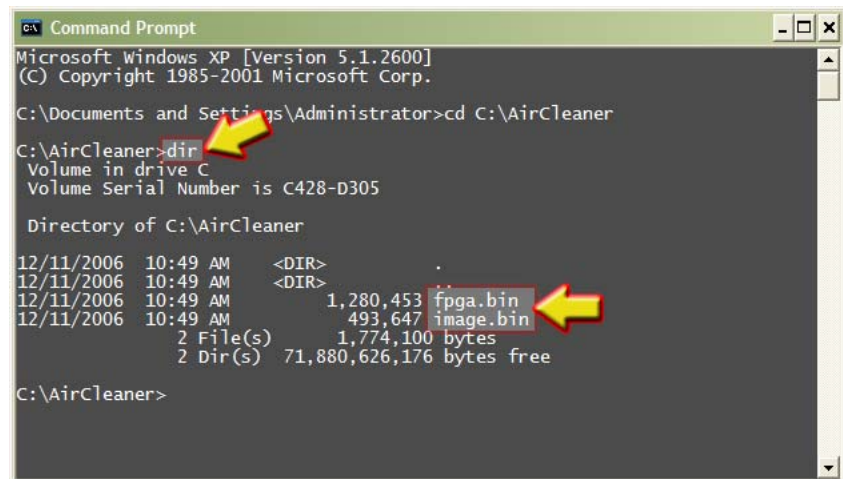
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>cd C:\AirCleaner
C:\AirCleaner>
  
```



7. Type the following command (*followed by ENTER*):

- `dir`

Text similar to that shown below will be returned. Verify the two files “fpga.bin” and “image.bin” are listed (*as shown by the lower arrow*):



```

Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>cd C:\AirCleaner
C:\AirCleaner>dir
Volume in drive C
Volume Serial Number is C428-D305

Directory of C:\AirCleaner

12/11/2006  10:49 AM  <DIR>          .
12/11/2006  10:49 AM  <DIR>          ..
12/11/2006  10:49 AM                1,280,453  fpga.bin
12/11/2006  10:49 AM                493,647  image.bin
               2 File(s)              1,774,100 bytes
               2 Dir(s)  71,880,626,176 bytes free

C:\AirCleaner>
  
```



8. In the Command Prompt window on your Windows PC, type the following command (followed by ENTER):

- ping ipaddress (where “ipaddress” is the IP Address of AirCleaner. The factory default IP Address is “192.20.200.240”)

You should get four replies, similar to that shown below. If no reply is made from AirCleaner, verify a standard Ethernet cable is connected to your LAN. If that's connected, then review and perhaps re-perform the procedure to set the AirCleaner's IP address, as detailed in the paragraph [“Changing the Ethernet Port Settings” on page 15](#) above.

```
12/11/2006 10:49 AM <DIR> .
12/11/2006 10:49 AM <DIR> ..
12/11/2006 10:49 AM          1,280,453 fpga.bin
12/11/2006 10:49 AM          493,647 image.bin
                2 File(s)      1,774,100 bytes
                2 Dir(s)      71,842,906,112 bytes free

C:\AirCleaner>ping 192.20.200.240
Pinging 192.20.200.240 with 32 bytes of data:
Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>
```

9. In the Command Prompt window, type the following command (followed by ENTER):

- ftp ipaddress (where “ipaddress” is the IP Address of AirCleaner. The factory default IP Address is “192.20.200.240”)

Within a few moments, AirCleaner will reply with a “User” login prompt, as shown here by the lower arrow:

```
12/11/2006 10:49 AM          1,280,453 fpga.bin
12/11/2006 10:49 AM          493,647 image.bin
                2 File(s)      1,774,100 bytes
                2 Dir(s)      71,842,906,112 bytes free

C:\AirCleaner>ping 192.20.200.240
Pinging 192.20.200.240 with 32 bytes of data:
Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)):
```

10. At the user login prompt, type the following user name (*followed by ENTER*):

- root

AirCleaner will prompt you for a password, as shown by the lower arrow here:



```

C:\AirCleaner>ping 192.20.200.240

Pinging 192.20.200.240 with 32 bytes of data:

Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
  
```

11. At this password prompt, type the following password; being sure to follow the upper- and lower-case as shown (*followed by ENTER*):

- Abekas

**NOTE:** As you type this password, NO characters will appear on the screen, and the cursor will NOT move; so type very carefully!

If the password is accepted, AirCleaner will return with an “ftp>” prompt, as shown by the lower arrow here:

```

C:\AirCleaner>ping 192.20.200.240

Pinging 192.20.200.240 with 32 bytes of data:

Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp>
  
```



12. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- bin

The “Type set to I” indicator will be returned, and another “ftp>” prompt will be presented, as shown by the lower arrow here:

```
Command Prompt - ftp 192.20.200.240

Pinging 192.20.200.240 with 32 bytes of data:
Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp>
```

13. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- put fpga.bin

The “About to open data connection” status will appear during the transfer:

```
Command Prompt - ftp 192.20.200.240

Reply from 192.20.200.240: bytes=32 time=2ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60
Reply from 192.20.200.240: bytes=32 time<1ms TTL=60

Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
```

**NOTE** *The file transfer will take anywhere from a few seconds up to two minutes to complete. During this file transfer time, the message “About to open data connection.” will be active.*

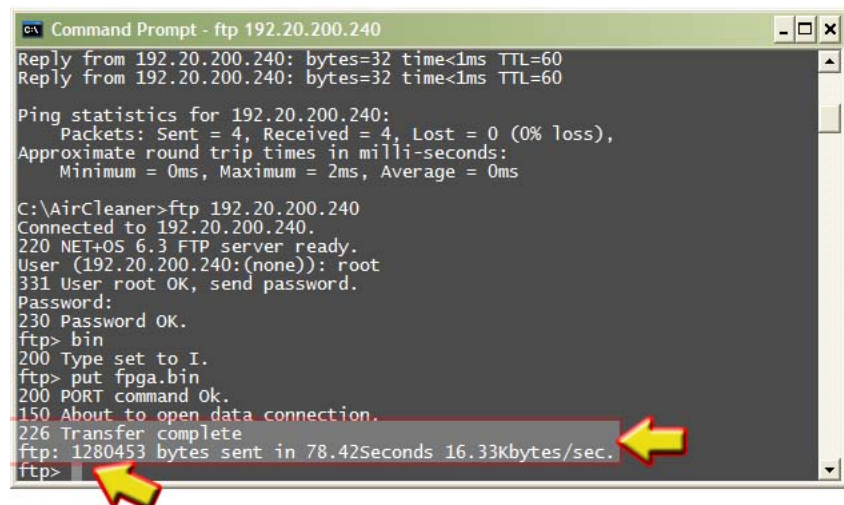


14. At this point, a “Windows Security Alert” message window **may or may not** appear, as shown here:



- If this “Windows Security Alert” message window **DOES** appear:
  - Click the “Unblock” button, as shown above;
  - Continue with the next step (15.) below.
- If this “Windows Security Alert” message window **DOES NOT** appear:
  - Complete **ONLY** the next **two** steps (15.) and (16.);
  - **Wait 1 minute** for the Ethernet module to restart;
  - Then skip ahead to step step (18.) on page 37 below.

15. After the “fpga.bin” file has been copied, the transfer status will be returned to the Command Prompt window. Another “ftp>” prompt will be presented, as shown by the lower arrow here:





16. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- quit

...and the system prompt will be returned:

```
Command Prompt
Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.

C:\AirCleaner>
```

**NOTE:** The *QUIT* command resets AirCleaner’s Ethernet module; the *GREEN* l.e.d. on AirCleaner’s Ethernet port indicates the status of the module reset:

- 0 ~ 20 Seconds after typing QUIT: Green LED blinking (reset begins)
- 20 ~ 45 Seconds after typing QUIT: Green LED stops blinking
- 50 ~ 60 Seconds after typing QUIT: Green LED blinking (reset finished)

17. Since the “**Windows Security Alert**” window had appeared earlier (and you “**Unblocked**” it), the Alert may have interfered with a proper FTP transfer of the “**fpga.bin**” file to AirCleaner. Therefore, you will need to:

- Repeat steps (9.) through (16.) starting on page 32 above;
- Ensure the “**Windows Security Alert**” window does not appear this time;
- Then continue with the next step for the remainder of the procedure...



18. In the Command Prompt window on your Windows PC, type the following command at the system prompt (*followed by ENTER*):

- ftp ipaddress (where “ipaddress” is the IP Address of AirCleaner. The factory default IP Address is “192.20.200.240”)

Within a few moments, AirCleaner will reply with a “User” login prompt, as shown by the lower arrow here:

```

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:

```

19. At this prompt, type the following user name (*followed by ENTER*):

- root

AirCleaner will prompt you for a password, as shown by the lower arrow here:

```

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:

```



20. At this password prompt, type the following password; being sure to follow the upper- and lower-case as shown (*followed by ENTER*):

- Abekas

**NOTE:** As you type this password, *NO* characters will appear on the screen, and the cursor will *NOT* move; so type very carefully!

If the password is accepted, AirCleaner will return with an “ftp>” prompt, as shown here:

```
Command Prompt - ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1284373 bytes sent in 77.52Seconds 16.57Kbytes/sec.
ftp> quit

C:\AC-V145s>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp>
```

21. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- bin

The “Type set to I” indicator will be returned, and another “ftp>” prompt will be presented, as shown by the lower arrow here:

```
Command Prompt - ftp 192.20.200.240
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1284373 bytes sent in 77.52Seconds 16.57Kbytes/sec.
ftp> quit

C:\AC-V145s>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp>
```



22. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- put image.bin

The “**About to open data connection**” status will appear during the transfer:



```

Command Prompt - ftp 192.20.200.240
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put image.bin
200 PORT command Ok.
150 About to open data connection.

```

**NOTE** *The file transfer will take anywhere from a few seconds up to two minutes to complete. During this file transfer time, the message “**About to open data connection.**” will be active.*

23. After the “**image.bin**” file has been copied, the transfer status will be returned to the Command Prompt window. Another “ftp>” prompt will be presented, as shown by the lower arrow here:

```

Command Prompt - ftp 192.20.200.240
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put image.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 493647 bytes sent in 26.06Seconds 18.94Kbytes/sec.
ftp>

```



24. At this “ftp>” prompt, type the following command (*followed by ENTER*):

- quit

...and the system prompt will be returned:

```
Command Prompt
Ping statistics for 192.20.200.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\AirCleaner>ftp 192.20.200.240
Connected to 192.20.200.240.
220 NET+OS 6.3 FTP server ready.
User (192.20.200.240:(none)): root
331 User root OK, send password.
Password:
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put fpga.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 1280453 bytes sent in 78.42Seconds 16.33Kbytes/sec.
ftp> quit
221 Goodbye.
C:\AirCleaner>
```

**NOTE:** The *QUIT* command resets AirCleaner’s Ethernet module; the *GREEN* l.e.d. on AirCleaner’s Ethernet port indicates the status of the module reset:

- 0 ~ 20 Seconds after typing QUIT: Green LED blinking (reset begins)
- 20 ~ 45 Seconds after typing QUIT: Green LED stops blinking
- 50 ~ 60 Seconds after typing QUIT: Green LED blinking (reset finished)

25. You may now close the **Command Prompt** window. The file transfer process is finished; please continue with the “**Web Page Programming**” procedure on the next page...

### Updating AirCleaner Software/Firmware - Web Page Programming

After you've transferred the "fpga.bin" and "image.bin" files from your Windows PC to the AirCleaner (See "Updating AirCleaner Software/Firmware - Transfer Files" on page 30), you're now ready to update AirCleaner's software.

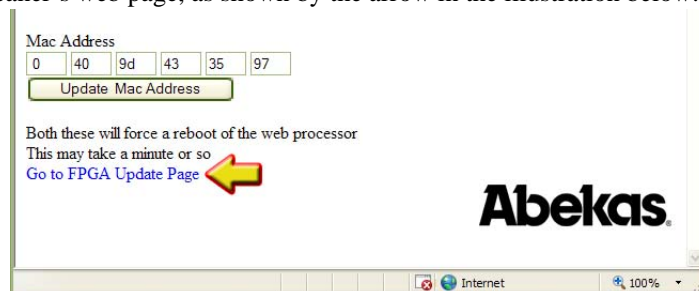


1. From the **Windows PC**, launch the Internet Explorer web browser (or any web browser program).
2. In the "**URL Address**" line of the browser window, type the web address of AirCleaner (followed by **ENTER**), as shown by the arrow at the top of the illustration below:
  - **http://ipaddress/** (where "ipaddress" is the IP Address of AirCleaner. The factory default IP Address is "192.20.200.240")

The web page for AirCleaner will appear in the browser window:



3. Click the "**Go to FPGA Update Page**" link located near the bottom of AirCleaner's web page, as shown by the arrow in the illustration below:





4. This presents the “**AirCleaner Xilinx Flash Utility**” web page, shown below. Click the “**Program Xilinx Flash**” button, as shown by the arrow:

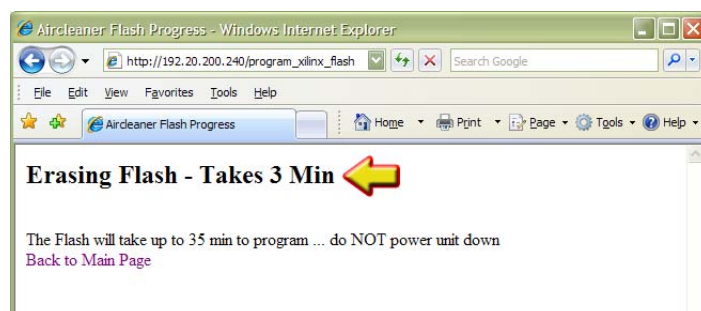


**WARNING**

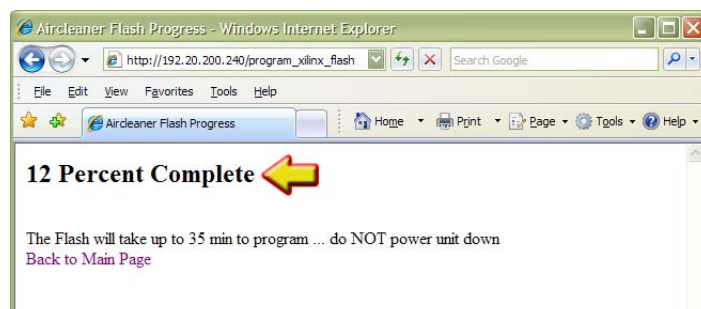
**DO NOT REMOVE POWER FROM AIRCLEANER!**

*The Xilinx Flash programming takes about **35 Minutes** to perform! DO NOT REMOVE POWER from the AirCleaner chassis until instructed to do so; otherwise, the video hardware inside AirCleaner will be damaged!*

5. Within a few moments, the web page will display the status of the flash erasure:



6. After about 3 minutes of erasing the flash, the web page will display the status of the Xilinx programming:



- This “**Percent Complete**” status will increment and remain in view for **about 35 minutes** while the AirCleaner is programmed.



### WARNING

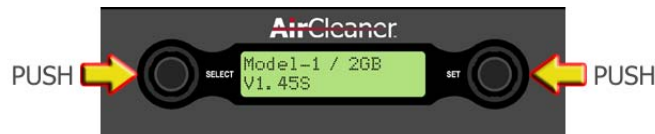
### DO NOT REMOVE POWER FROM AIRCLEANER!

*The Xilinx Flash programming takes about 35 Minutes to perform! DO NOT REMOVE POWER from the AirCleaner chassis until instructed to do so; otherwise, the video hardware inside AirCleaner will be damaged!*

- When the programming is finished, the web browser on the Windows PC will display “**Program Complete – Repower Unit**”:



- It is now safe to unplug the AC Power cord(s) to completely remove AC power from the AirCleaner chassis.
- Wait 15 seconds or so, and then re-insert the AC Power cord(s) to re-power the AirCleaner chassis.
- After AirCleaner has booted up, press and release BOTH the “SELECT” and “SET” rotary knobs at the same time on the front of the AirCleaner chassis; this will present the software version in the front panel LCD menu display:



The bottom line displays the new software version (*shown as “V1. 45S” in the illustration above; the version in your AirCleaner will be different*). Verify this value is correct.

- You may now close the browser window on the Windows PC; the update process is finished. Or you may use the web browser to navigate back to the AirCleaner home page, to verify the AirCleaner is operational via Ethernet.

### NOTE

*The Ethernet module inside AirCleaner takes about 30 seconds to be operational AFTER AirCleaner is powered ON.*



# 4. Operations




---

## In This Chapter

The following topics are covered in this chapter:

- [Overview](#) ..... 45
- [Theory of Operation](#)..... 46
- [Front Panel](#) ..... 54
- [Delay Times](#) ..... 55
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- [User Configurations](#)..... 61
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- [Control Panel Menu Item Descriptions](#) ..... 72
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---

## Overview

The unique architecture of AirCleaner allows for multiple user modes consisting of one or two screeners, multiple trigger options and the ability to have two completely independent delay paths through the system with independent control of audio and video delay.

Although AirCleaner was designed primarily as a device to screen out visual and aural obscenities and profanities, it also features an adjustable delay to offset audio relative to video and therefore may also find uses as an audio-to-video synchronization device.

Realizing that every broadcast facility is designed for a unique workflow, AirCleaner in turn is designed with maximum flexibility in mind. AirCleaner provides the flexibility required to meet a multitude of needs.

AirCleaner can be quickly and easily configured by the user to provide either one-user or two-user operation. With two-user operation, the internal delay can be split between the two users in any proportion desired; each of these screeners also has their own parameters for reaction time, individually adjustable for both audio and video. AirCleaner also offers a simple way to offset the audio and video delay to compensate for timing or synchronization errors in the incoming audio/video feed.



## 4 Theory of Operation

The basic operation of AirCleaner is described and illustrated in the following series of diagrams. For the sake of simplicity, only the video pathway is described, and the basic increment of time in the illustrations is one second (with up to 30 frames included in each second, depending on the video format).

In this operational example, AirCleaner is programmed with the following significant parameters:

- Screeners = One
- Total PGM Delay = 40:00
- Video Reaction 1 = 2:00
- On Video Trigger = Defocus
- Defocus Ramp = 0:00

This example begins at an arbitrary “time zero” (00:00) as illustrated by the stop watch timer. As this example progresses, the stop watch timer advances as the violation segment of video shifts rightward through the video pipeline.

The real-time defocus engine is positioned at the end of the video pipeline in AirCleaner, and is normally switched out of the video pathway. As you will see, when the first video frame that is marked as the start of violation reaches the end of the delay pipeline, AirCleaner then automatically switches the video output to the processed output of the real-time defocus engine.

1. TIME 00:00 | At the left edge of the illustration below, there are “violation” frames (marked with an X) advancing towards the Screener’s video monitor and input to AirCleaner. The screening operator doesn’t yet know this, but the first frame of this violation will reach his screening monitor in 5 seconds (as depicted by the five one-second squares between the violation video and the video input to AirCleaner). The “O” frame will also advance through the delay.

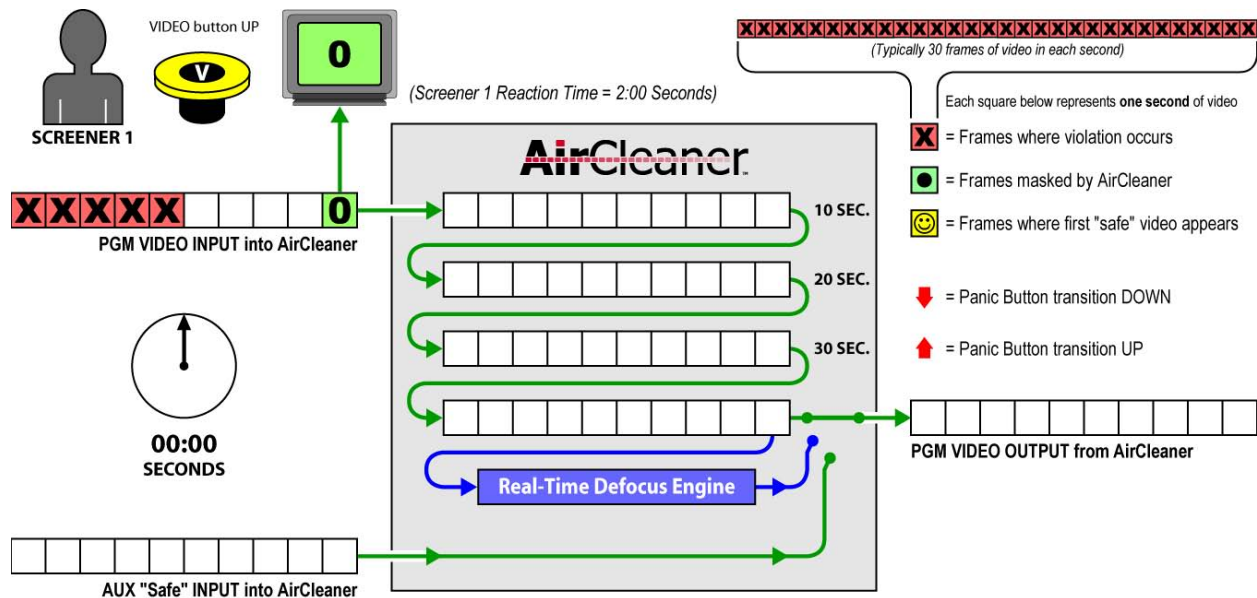
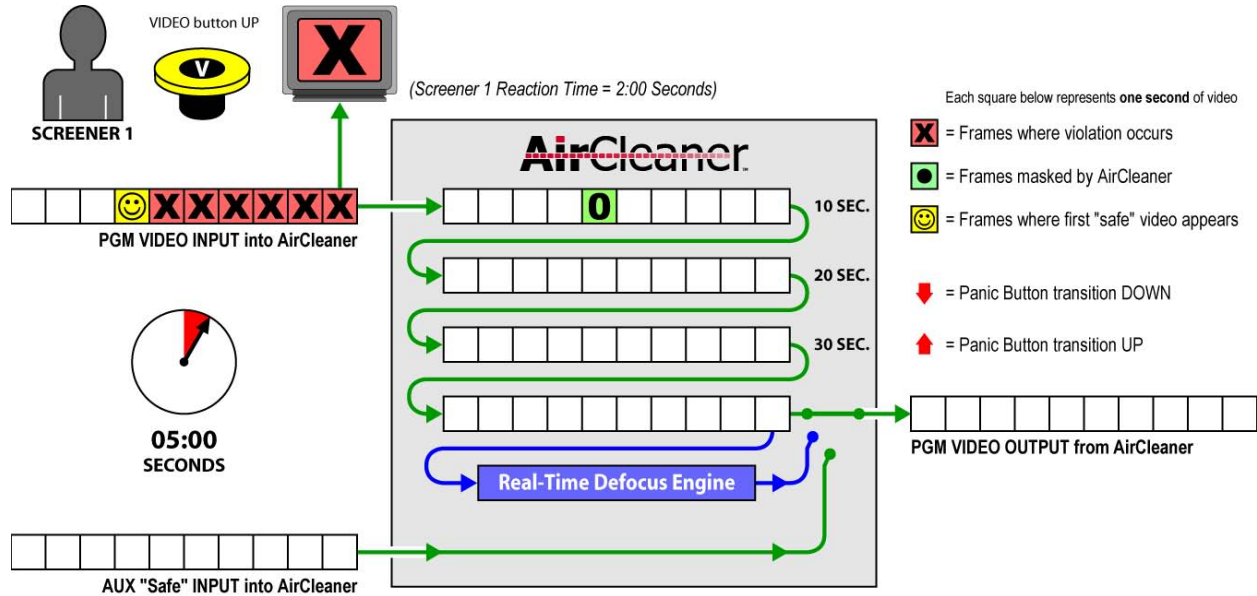


Figure 4-1. Theory of Operation Example: Elapsed Time of 00:00 seconds



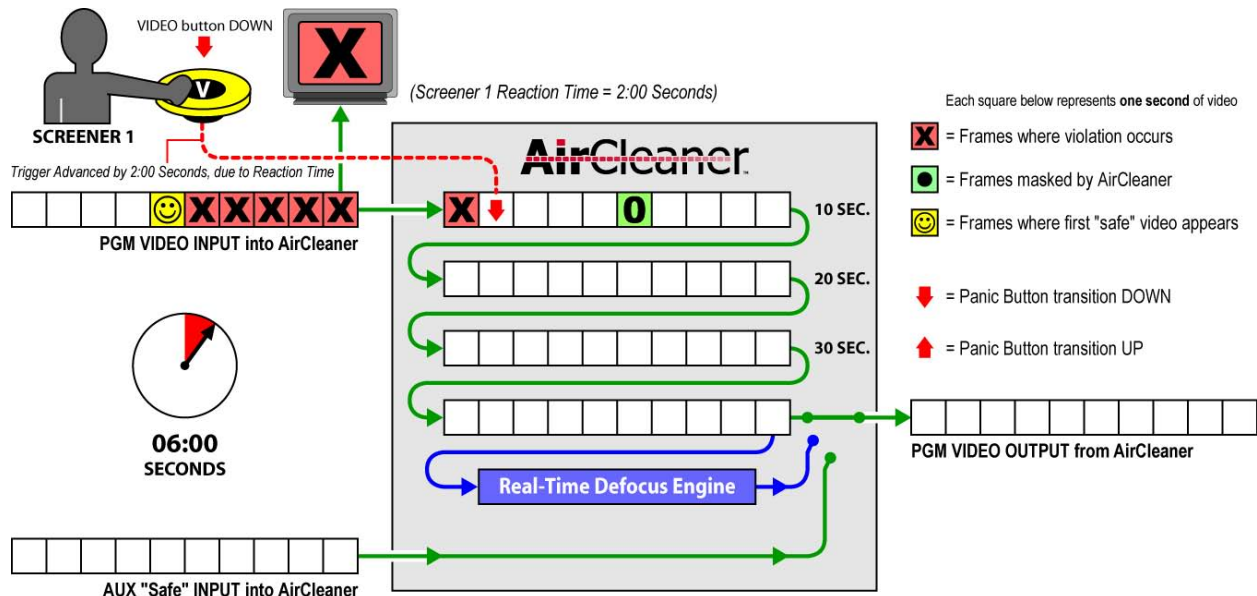


2. TIME 05:00 | After five seconds have elapsed, the first frame of the violation appears on the Screener's video monitor and is presented to AirCleaner's video input. However, due to human visual reaction delay, the Screener has not yet pressed the VIDEO panic button.



**Figure 4-2.** Theory of Operation Example: Elapsed Time of 05:00 seconds

3. TIME 06:00 | After one more second in time has elapsed (6 seconds in total) the human operator now recognizes the violation, pushes the VIDEO panic button and holds down the button. Since the Reaction Time for this Screener is programmed for 2:00 Seconds, the button trigger is advanced forward in time by AirCleaner, and is marked in the video one second *before* the violation.



**Figure 4-3.** Theory of Operation Example: Elapsed Time of 06:00 seconds



4. TIME 10:00 | After four more seconds have elapsed (10 seconds in total) the human operator is still holding down the VIDEO panic button. The operator doesn't yet know this, but the end of the violation is only one second away.

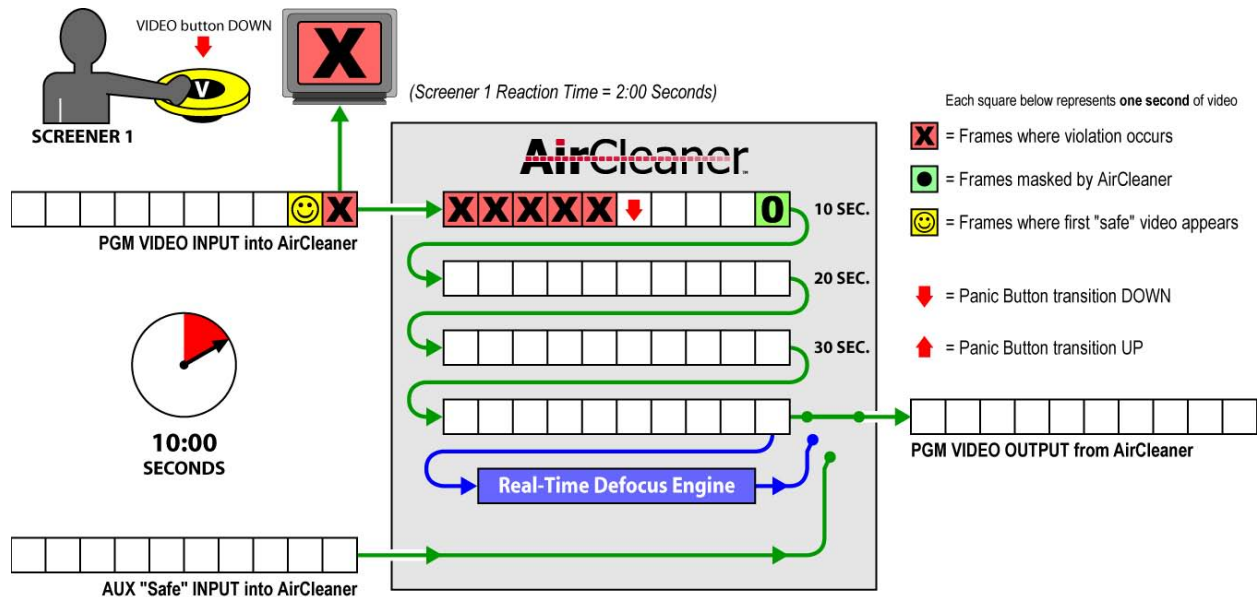


Figure 4-4. Theory of Operation Example: Elapsed Time of 10:00 seconds

5. TIME 11:00 | After one more second has elapsed (11 seconds in total) the human operator is still holding down the VIDEO panic button. The violation is over, but because of human visual reaction, the screener is now just realizing the VIDEO panic button can be released.

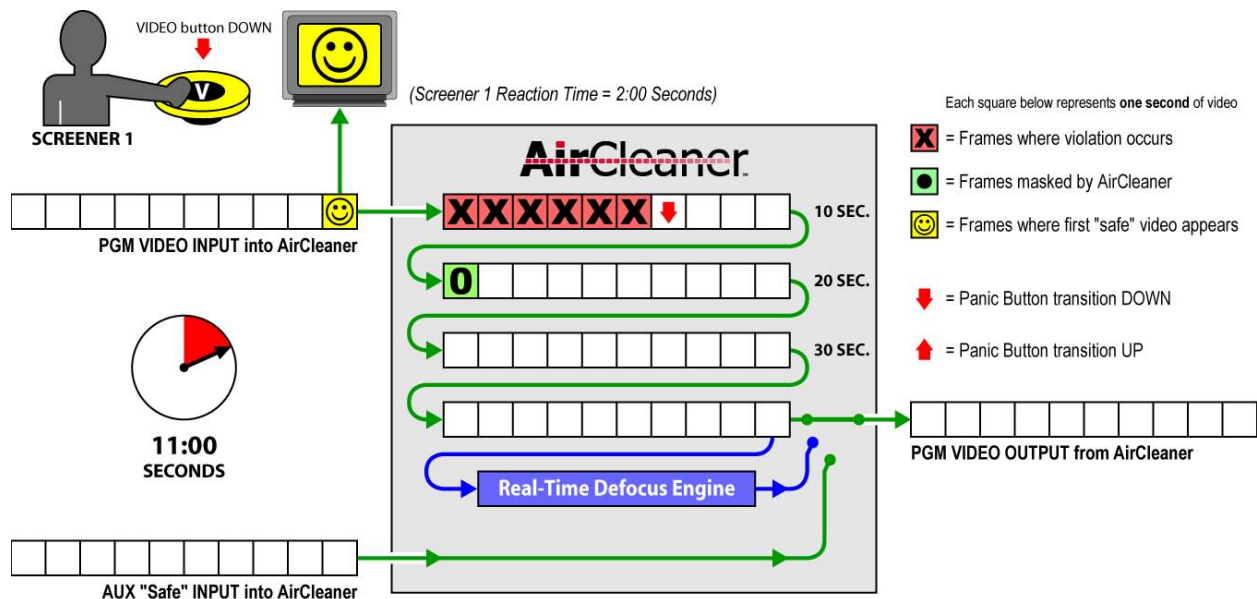
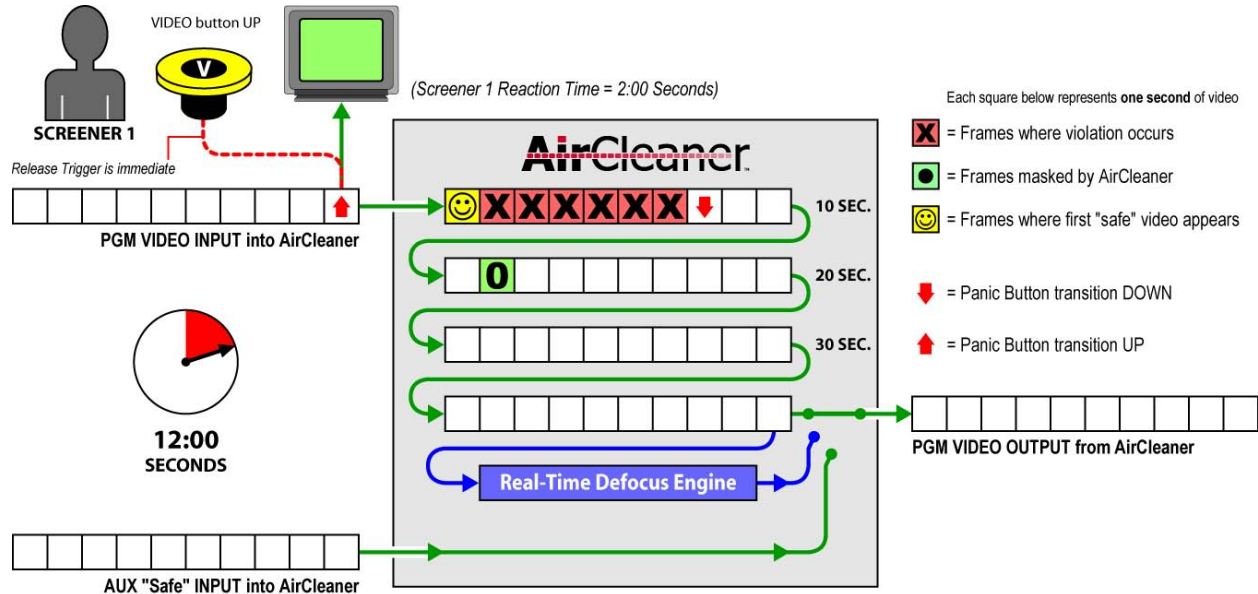


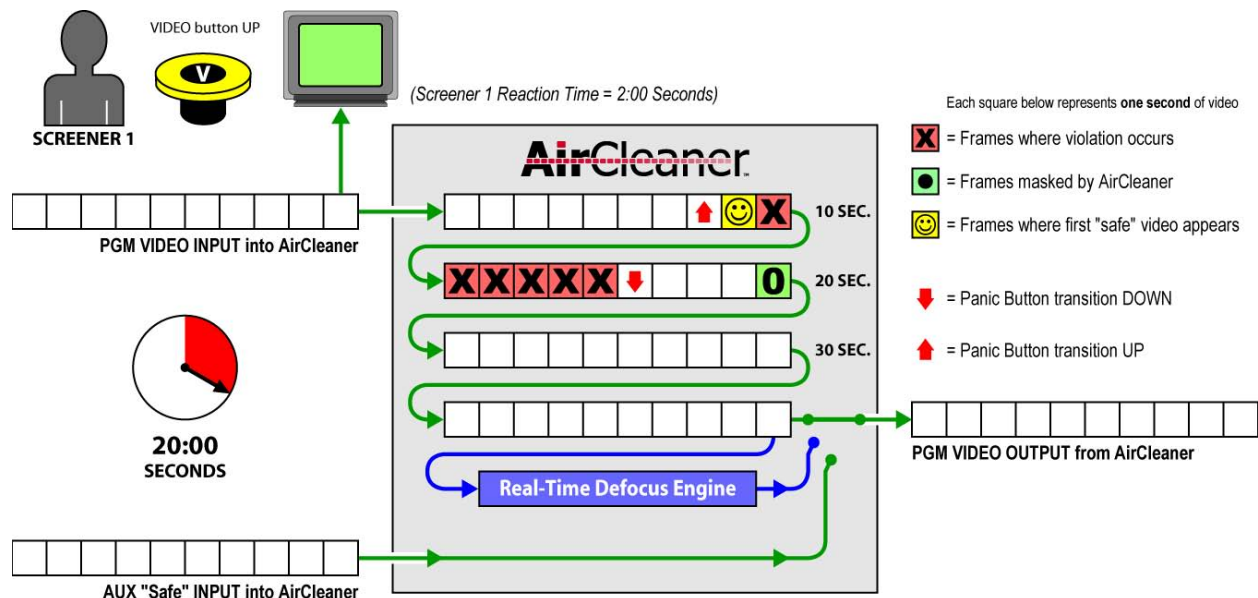
Figure 4-5. Theory of Operation Example: Elapsed Time of 11:00 seconds

6. **TIME 12:00** | After one more second has elapsed (12 seconds in total) the human operator has released the VIDEO panic button. AirCleaner will mark that frame of video as the end of the violation (as shown by the upward arrow). Notice the button release is *not* advanced by the Reaction Time parameter.



**Figure 4-6.** Theory of Operation Example: Elapsed Time of 12:00 seconds

7. **TIME 20:00** | After eight more seconds have elapsed (20 seconds in total) the violation video is now making its way through AirCleaner's video pipeline delay. The start and end of the violation (as depicted by the two arrows in the illustration below) are marked by AirCleaner to later tell the real-time defocus engine when to switch into and out of the video pathway.



**Figure 4-7.** Theory of Operation Example: Elapsed Time of 20:00 seconds



8. TIME 43:00 | After twenty-three more seconds have elapsed (43 seconds in total) the violation video has now made its way near the end of AirCleaner's video pipeline delay. The first frame that was marked as the start of the violation is just one second away from triggering the defocus engine.

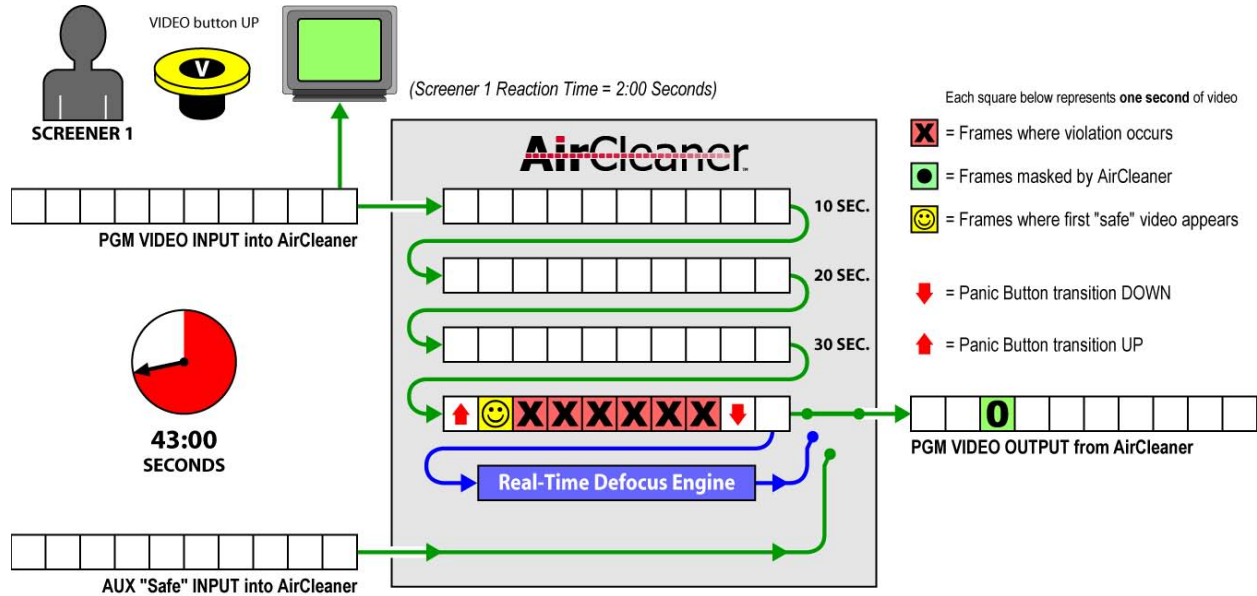


Figure 4-8. Theory of Operation Example: Elapsed Time of 43:00 seconds

9. TIME 44:00 | After one more second has elapsed (44 seconds in total) the first frame that was marked as the start of the violation has now arrived at the input to the defocus engine.

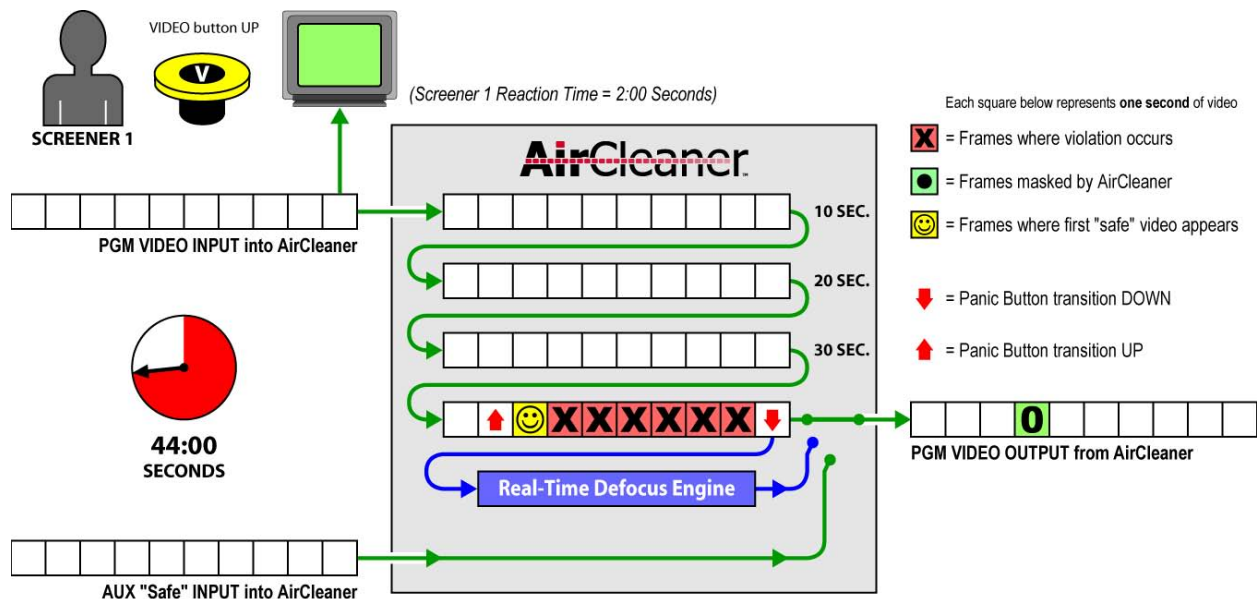
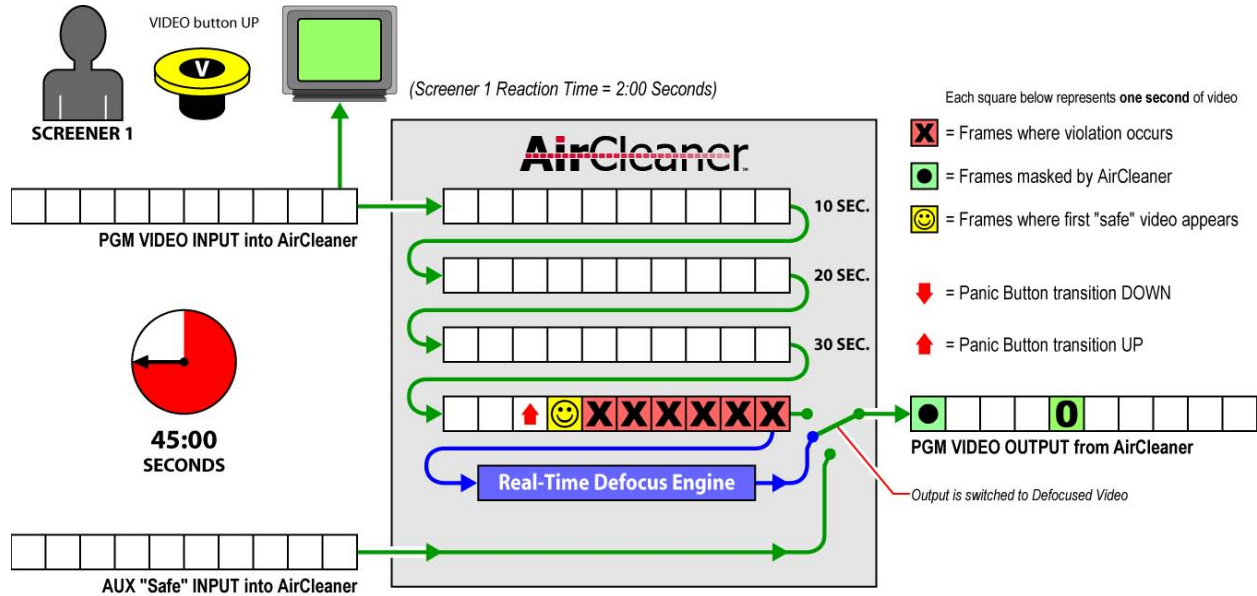


Figure 4-9. Theory of Operation Example: Elapsed Time of 44:00 seconds



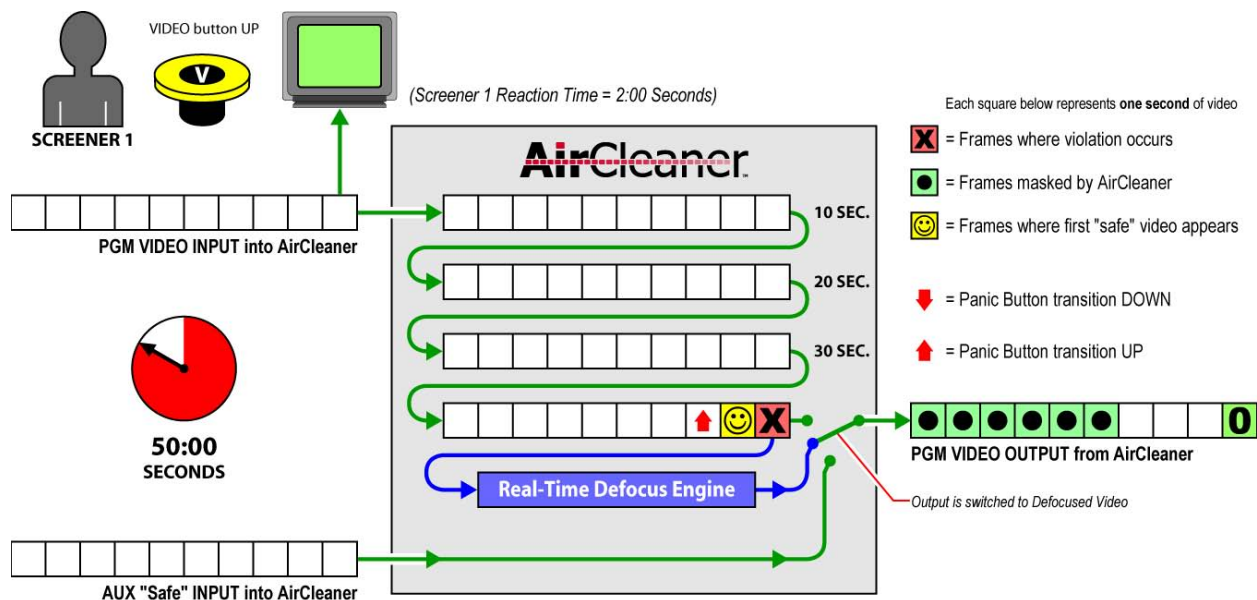


10. TIME 45:00 | After one more second has elapsed (45 seconds in total) the defocus engine is now automatically switched to the video output. The first second of the video just prior to the violation is now masked by the defocus engine and is presented on the PGM OUT from AirCleaner.



**Figure 4-10.** Theory of Operation Example: Elapsed Time of 45:00 seconds

11. TIME 50:00 | After five more seconds have elapsed (50 seconds in total) the end of the violation is nearing the defocus engine. The previous six seconds of video have been masked by the defocus engine and presented on the PGM OUT from AirCleaner.



**Figure 4-11.** Theory of Operation Example: Elapsed Time of 50:00 seconds



12. TIME 51:00 | After one more second has elapsed (51 seconds in total) the first “safe” frame just after the violation has arrived at the defocus engine. However, the “end of violation” marker (as depicted by the upward arrow) has not yet triggered the defocus engine out of the video pathway; therefore, this one second of “safe” video will also be masked.

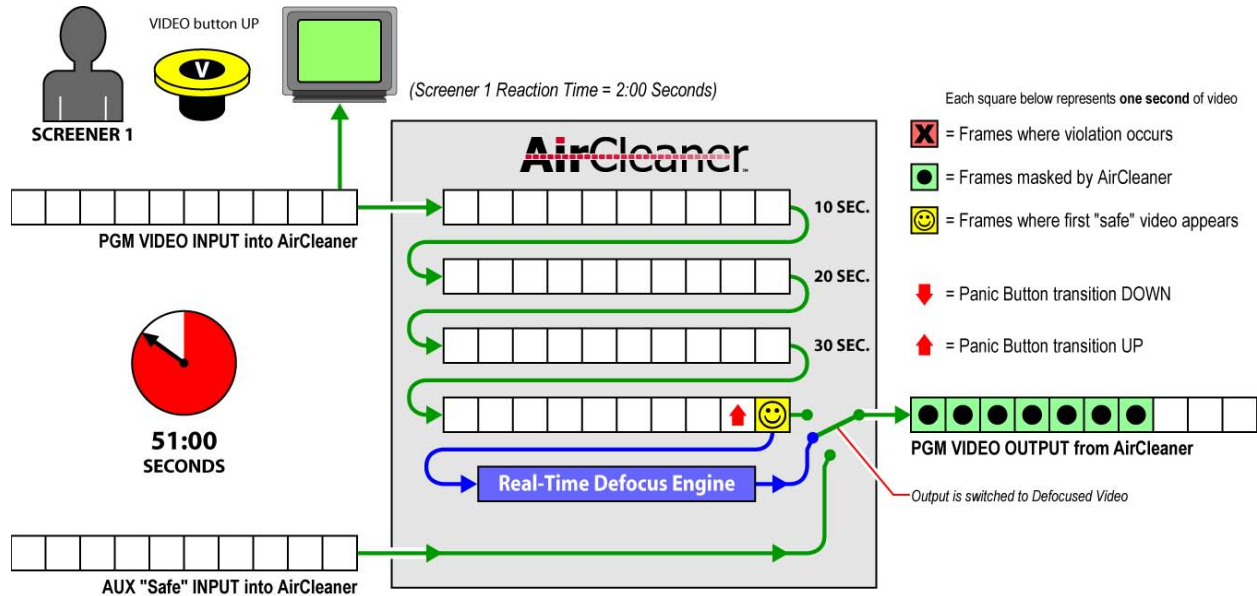


Figure 4-12. Theory of Operation Example: Elapsed Time 51:00 seconds

13. TIME 52:00 | After one more second has elapsed (52 seconds in total) the “end of violation” marker (as depicted by the upward arrow) will now trigger the defocus engine out of the video pathway.

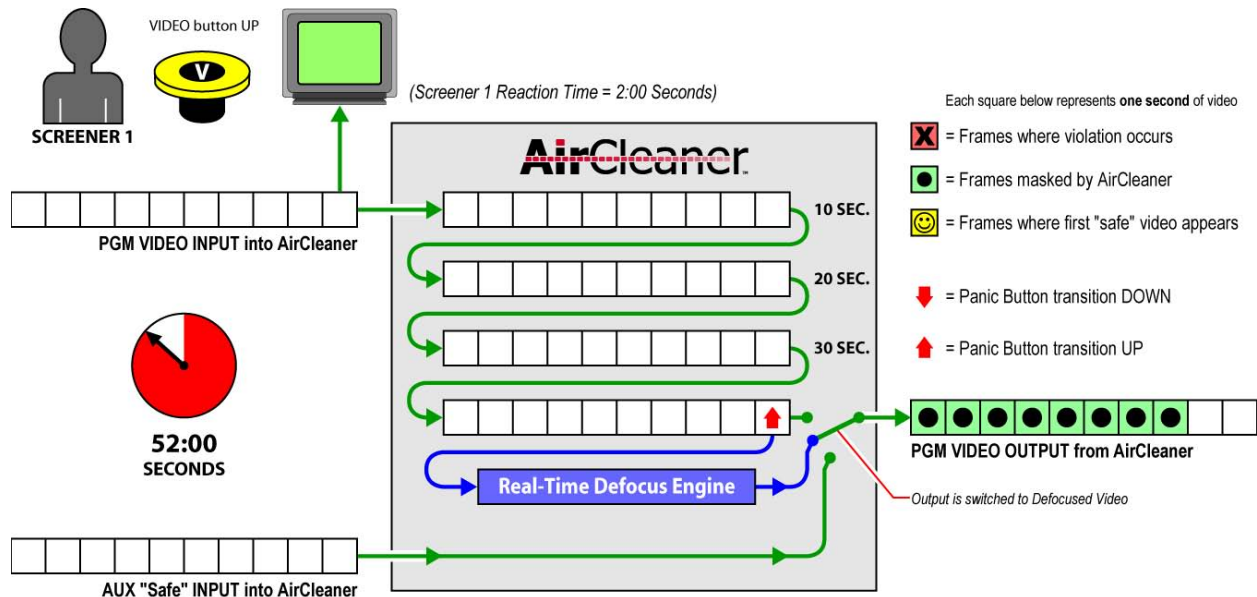
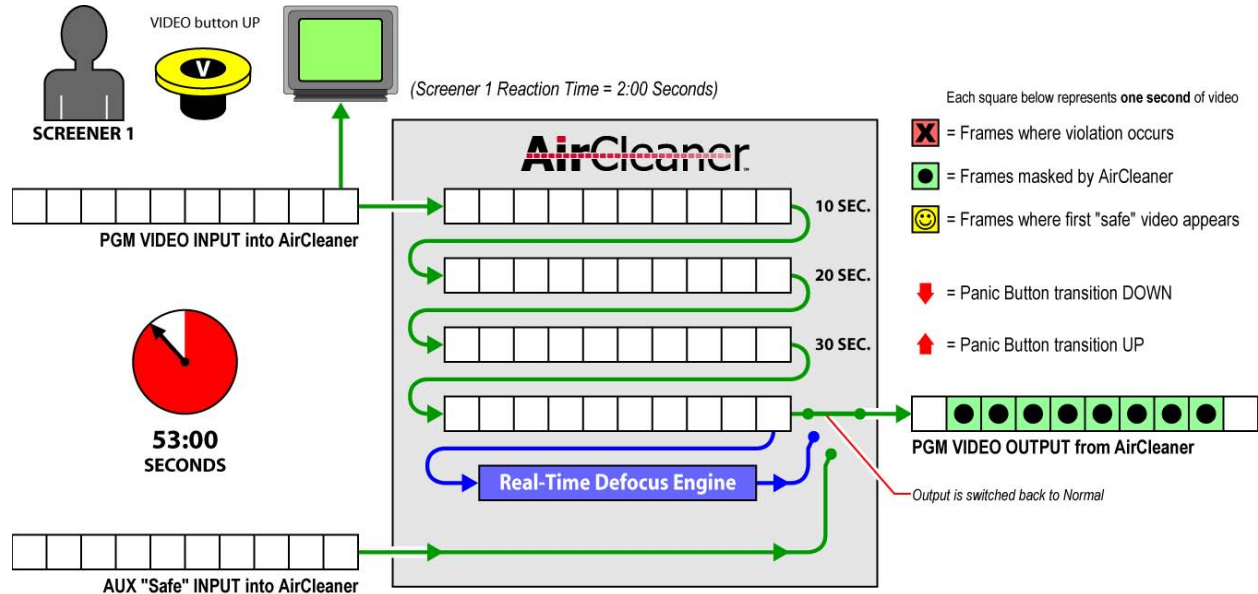


Figure 4-13. Theory of Operation Example: Elapsed Time of 52:00 seconds



14. TIME 53:00 | After one more second has elapsed (53 seconds in total) the defocus engine has been switched out of the video pathway. The video output now displays “normal” unprocessed video (although it is still delayed by 40 seconds, as compared to the video input).



**Figure 4-14.** Theory of Operation Example: Elapsed time of 53:00 seconds

The scenario illustrated above provides the basic theory of operation for the video delay inside AirCleaner. There are many other features inside AirCleaner that can be used to tailor the machine to a particular application. Of course, in addition to masking out video violations, AirCleaner can also be used to screen out audio violations.

Not depicted in the scenario above is use of the Defocus Ramp parameter to “ramp up” and “ramp down” the amount of defocus when switching the defocus engine in and out of the video pathway. This ramping allows the transition from “normal” video to the masked, defocused video (and vice-versa) to happen gradually; much like a video camera going out of focus and back into focus. The result is a much more realistic and natural visual effect.

If desired, AirCleaner can also be programmed to switch to an auxiliary “safe” video input feed at the time of violation, rather than using the internal defocus engine.

Furthermore, AirCleaner can be programmed for Two-Screener operation, in which two separate screening operators work in series inside AirCleaner’s delay pathway. The audio/video TAP OUT provides a monitoring point for the second screener to monitor the output from the first screener. Two-Screener operation provides an extra measure of security against violations making it to air, since the second screener has an opportunity to mask out any portion of the violation which the first screener may have missed.

## 4 Front Panel

The user interface for AirCleaner consists of an illuminated front-panel LCD menu display with two rotary knobs, providing simple and fast system setup. Each of the two rotary knobs features an integrated push button for selecting menu items and confirming parameter changes. The only other control mechanism on the front panel is the **BYPASS** button.



Figure 4-15. AirCleaner Front Panel User Interface

### BYPASS Button

This button is used in case AirCleaner needs to be eliminated from the audio/video signal pathway for trouble-shooting purposes; or in case AirCleaner becomes faulty while on the air.

When pressed and illuminated, the **BYPASS** button activates the internal bypass relays. To activate the push-button, swing open (from bottom) the clear plastic cover that protects the switch; then push the button.

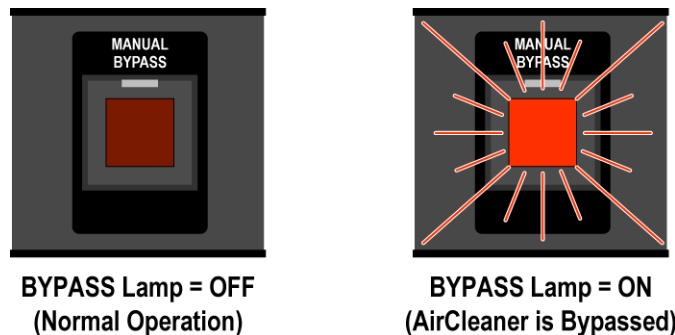


Figure 4-16. Bypass Button on AirCleaner Front Panel

All audio/video inputs and outputs are equipped with bypass relays that are also automatically activated in the event of complete power supply failure (in the case of AirCleaner systems fitted with redundant power supplies, this would mean both power supplies have failed). When the bypass relays are active, the **PGM IN** audio/video is routed directly to **PGM OUT** with no delay in the pathway. The menu parameters will not be active at this time and the **STEREO ANALOG AUDIO OUTPUT** jack will not be active.

**NOTE** *Disabling **BYPASS** will return AirCleaner to “Normal” operations, and results in a rewrite of the audio/video delay buffers inside AirCleaner; to activate the delays as defined by the delay parameters. During this period, a very brief “glitch” will occur on the audio/video outputs; the video freezes and audio mutes.*



## Menu Control Panel

With simplicity in mind, the menu system for AirCleaner consists of just three menu trees: the Main Menu, User Memory Menu, and the Options Menu. There are two rotary knobs that control the navigation of these menus.



**Figure 4-17.** Close up of AirCleaner User Interface

The left rotary knob is labeled **SELECT** and when turned will select the various menu parameters. **PUSH** and **HOLD** down the **SELECT** knob to modify the **SET** knob behavior; allowing the parameter values to be adjusted faster than normal. Please refer to [refer to “Fast Adjust for Wide-Range Parameter Value Changes” on page 67](#)

The right rotary knob is labeled **SET** and when turned will adjust the values for the current menu parameter.

**PUSH BOTH** knobs together at the same time to lock out menu control. To regain control, simply **TURN** or **PUSH** either knob and follow the simple menu instruction. Refer to [“Locking the Control Panel” on page 69](#) for more information.

## Delay Times

AirCleaner comes in two delay capacities. Model-1 has a maximum of 12 seconds of audio/video delay in HD (equating to 60 seconds of delay in SD); Model-2 has a maximum of 6 seconds of audio/video delay in HD (equating to 30 seconds of delay in SD). This audio/video delay time is the total delay inside AirCleaner and is shared between the two screeners during two-screener operation.

As far as control is concerned, the Video Delay is separate from the Audio delay inside AirCleaner; so it's possible to offset the audio-to-video timing to correct for incoming synchronization errors. This offset parameter is adjustable in groups of audio samples equal to 1/10 of a video frame. Refer to [refer to “PGM Audio Offset” on page 73](#) for more information.

Furthermore, the total program delay time inside AirCleaner can be split up between two separate users (or “Screeners”), so the two screeners can operate in series. When AirCleaner is programmed to operate with two Screeners, the “Total Program Delay” parameter determines the total delay from PGM IN to PGM OUT, while the separate “Screener 2 Delay” parameter determines how much of the total program delay is assigned to Screener 2 (with the balance of the delay time assigned to Screener 1). The ratio of delay time between the two Screeners can be programmed to any ratio desired. Please refer to the descriptions for the [“Total PGM Delay” on page 73](#) and [“Screener 2 Delay” on page 74](#) for more information.



## Reaction Time

Depending on the desired operation, AirCleaner requires one or two human operators. To account for the fact that all humans have differing reaction times, AirCleaner includes AutoClean<sup>™</sup> — a feature that eliminates the natural delayed reaction of human operators to respond to an observed visual or aural event.

### The AutoClean Feature

With AutoClean, four separate reaction times (one pair of audio/video reaction times for each operator) can be programmed to automatically “back up” the trigger point of the masking panic button. This gives each operator the time to recognize a violation prior to the panic button press, so the masking will start before that point — and will continue to be masked for the entire duration the given panic button is held down.

The four Reaction Time parameters drive the AutoClean function. Basically, these parameters advance the starting trigger point of each panic button (in increments of video frames). With respect to the video input to AirCleaner, the start of the trigger is advanced to a point in time before the button was actually pressed.

AutoClean allows most violations to be masked entirely. For even more security, a second screener can be added downstream from the first screener who will then have a second chance to mask any portion of the violation missed by the first screener. This second screener has a second set of audio and video Reaction Time parameters which are tailored to their own reaction profile. During two-screener operation, AirCleaner senses the total time both operators have held down their given Panic Buttons and therefore masks out the entire violation.

Please note the Reaction Time parameters only affect the starting trigger point (when the panic button is pressed), and does not affect the ending trigger point (when the panic button is released). This helps to ensure the entire violation is masked, and avoids back-timing into the end of the violation.

### Determining Operator Reaction Time

It's recommended to have each operator of AirCleaner be individually tested to determine the individual's reaction times — for both audio and video reactions. All humans have a slightly different reaction time to visual versus aural stimuli; AirCleaner therefore provides a separate reaction parameter for video and audio — and for each of the two human screeners.

Testing methods vary widely, but to ensure a proper test is performed, be sure to follow these guidelines:

- Test visual reaction separately from aural reaction; perform two separate tests.
- Use test footage never seen or heard by the human screener being tested; and make sure it's of sufficient length; at least 15 minutes or longer.
- Use test footage in which the violation sequences are placed in random locations inside the test footage.
- Make sure the violations follow the flow of the scenes being depicted; violations that are completely out of context will provide false reaction time, since the operator will be reacting to the out-of-context nature of the violation.



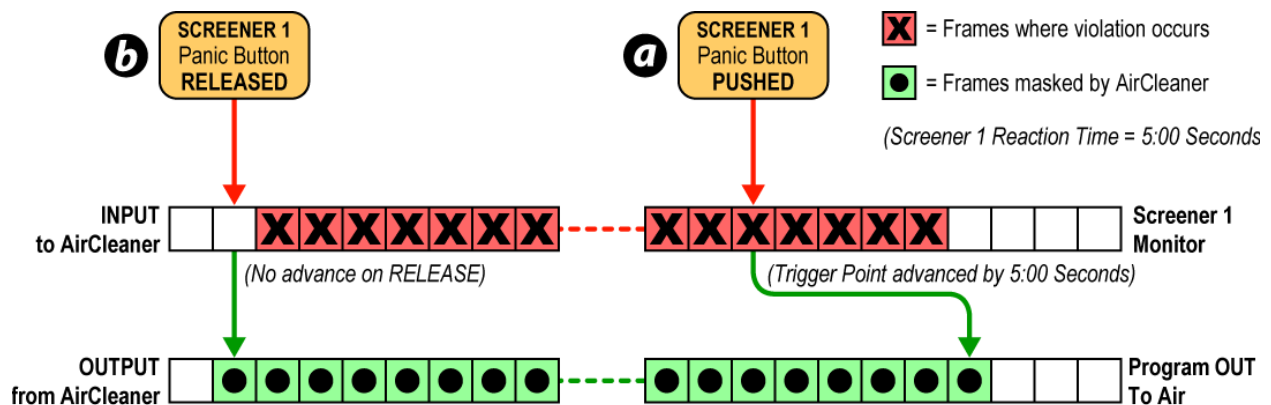
## One Screener Reaction Time Example

Following is an examples to illustrate the principles of the Reaction Time parameters when one screener is operating AirCleaner.

The illustration below depicts the video input into AirCleaner in the top row of squares, with each square representing one second of video. Within each second, there can be up to 30 individual frames of video (depending on the video format).

The RIGHT edge of the top row of video in the illustration represents the *first* frames of video fed into the input to AirCleaner, with the LEFT edge being the *last* frames.

Likewise, the RIGHT edge of the bottom row of video represents the *first* frames out of the video output from AirCleaner, with the LEFT edge being the *last* frames output.



**Figure 4-18.** Reaction Time with One Screener

In the illustration above, the operator pushes the panic button at a point in the input video stream that is four seconds *after* the violation had started (a). But because the Screener 1 Reaction Time is programmed for 5:00 seconds, the start of the trigger is automatically advanced by 5:00 seconds, and the entire violation is masked by AirCleaner on the video output.

Also notice the release of the panic button is immediately initiated (b); there is no reaction time applied to the release of the panic button, to avoid advancing back into the violation material.



### Two Screener Reaction Time Example

Following is an examples to illustrate the principles of the Reaction Time parameter, when two screeners are operating AirCleaner.

The illustration below depicts the video input into AirCleaner in the top row of squares, with each square representing one second of video. Within each second, there can be up to 30 individual frames of video (depending on the video format).

The RIGHT edge of the top row of video in the illustration represents the *first* frames of video fed into the input to AirCleaner, with the LEFT edge being the *last* frames.

Likewise, the RIGHT edge of the two bottom rows of video represents the *first* frames out of the “tap output” and program video output from AirCleaner, with the LEFT edge being the *last* frames output.

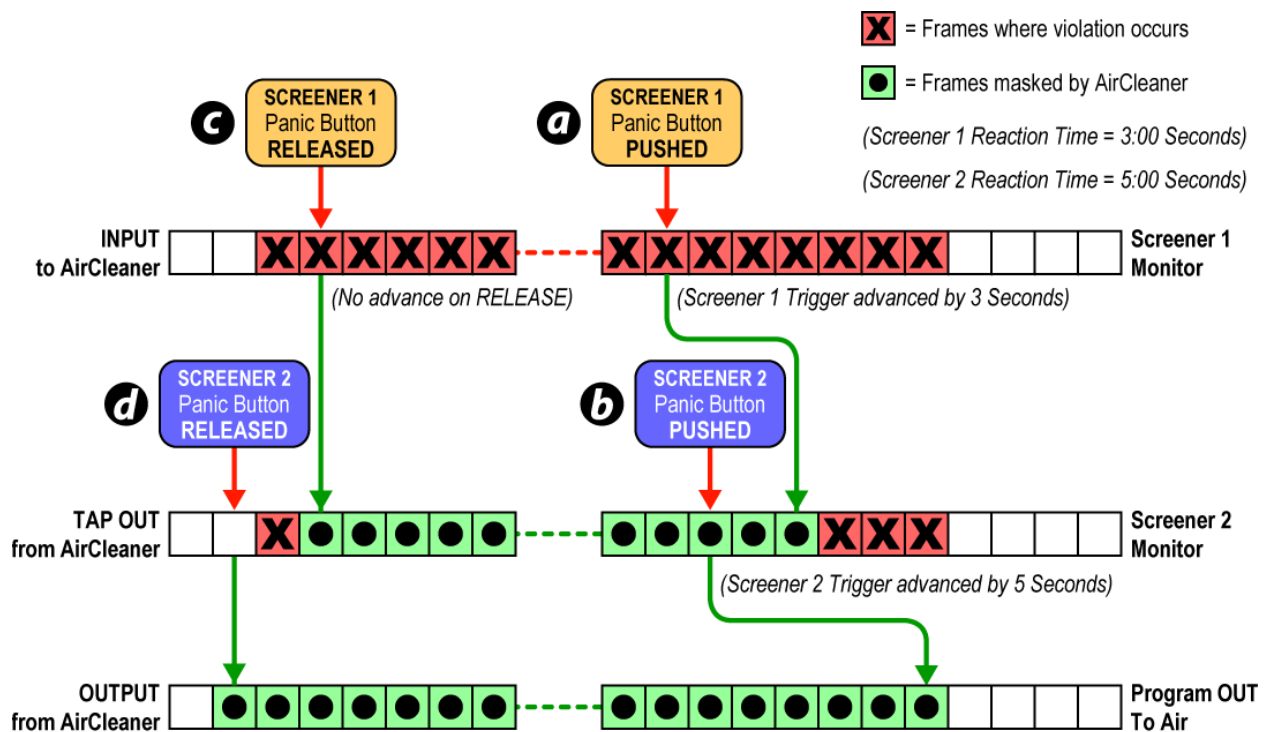


Figure 4-19. Reaction Time with Two Screeners

In the illustration above, Screener 1 pushes the panic button at a point in the input video stream that is six seconds *after* the violation had started (a). Even though Screener 1 has a Reaction Time programmed for 3:00 seconds, this advance on the trigger is not large enough to mask the start of the violation; three seconds at the start of the violation are therefore not masked by Screener 1, which Screener 2 sees on the TAP OUT screening monitor.

The panic button for Screener 2 is pressed just three seconds after the starting fragment of the violation (b). However, since Screener 2 has an additional 5:00 second Reaction Time, the trigger is advanced by an additional five seconds.

At point (c), Screener 1 thought the violation was finished, and released the panic button one second early; therefore, one more second of the violation makes it to the



Screener 2 TAP OUT screening monitor.

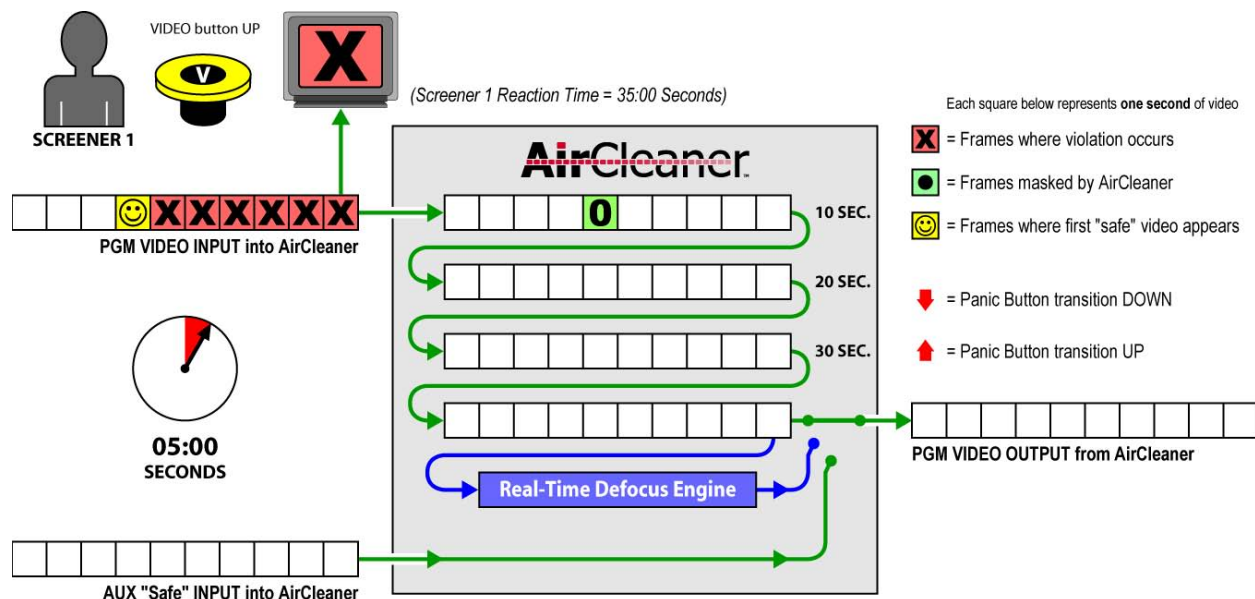
But Screener 2 continues to hold down his/her panic button for an additional two seconds, releasing it only after the end of the violation (d); the entire violation is therefore masked at the video output from AirCleaner.

### Drawback of Very Large Reaction Time

Although it may be tempting to program an extremely large Reaction Time, since larger may seem to be “better,” there is one pitfall of doing so: a very large reaction time will cause the masking trigger to be advance so far ahead of the actual violation, that program material that shouldn’t be masked will be masked.

For example, imagine the Video Reaction Time is set to a very large value of 35:00 seconds. Using an otherwise identical example as used earlier in the Theory of Operation discussion (refer to “Theory of Operation” on page 46 above), let’s take a look at what the very large reaction time will do.

1. **TIME 05:00** | The first frame of the violation appears on the Screener’s video monitor and is presented to AirCleaner’s video input. However, due to human visual reaction delay, the Screener has not yet pressed the VIDEO panic button.



**Figure 4-20.** Overly Large Reaction Time: Elapsed time of 05:00 seconds

## 4. Operations

### Reaction Time



2. TIME 06:00 | One more second in time has elapsed (6 seconds in total) and the human operator now recognizes the violation, pushes the VIDEO panic button and holds down the button. Since the Reaction Time for this Screener is programmed for 35:00 Seconds, the button trigger is advanced forward in time by AirCleaner, and is marked in the video 35 seconds *before* the violation.

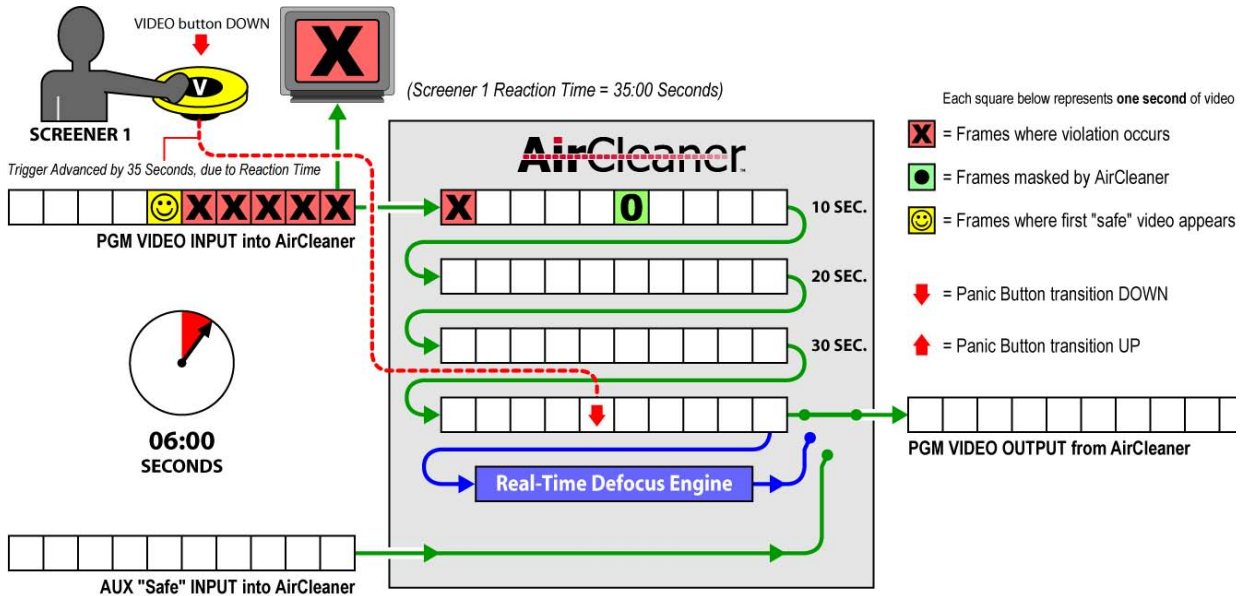


Figure 4-21. Overly Large Reaction Time: Elapsed time of 06:00 seconds

3. TIME 11:00 | After five more seconds have elapsed (11 seconds in total) the human operator is still holding down the VIDEO panic button. Notice the masking trigger (depicted by the downward arrow) is already at the end of the video delay pipeline, ready to switch in the defocus.

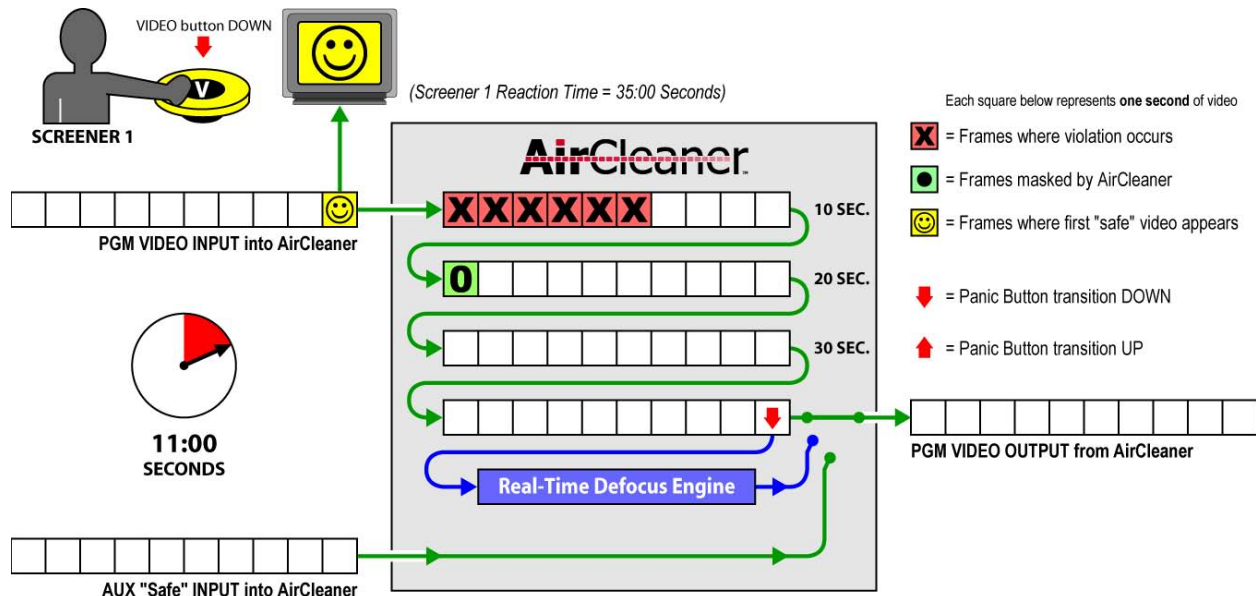
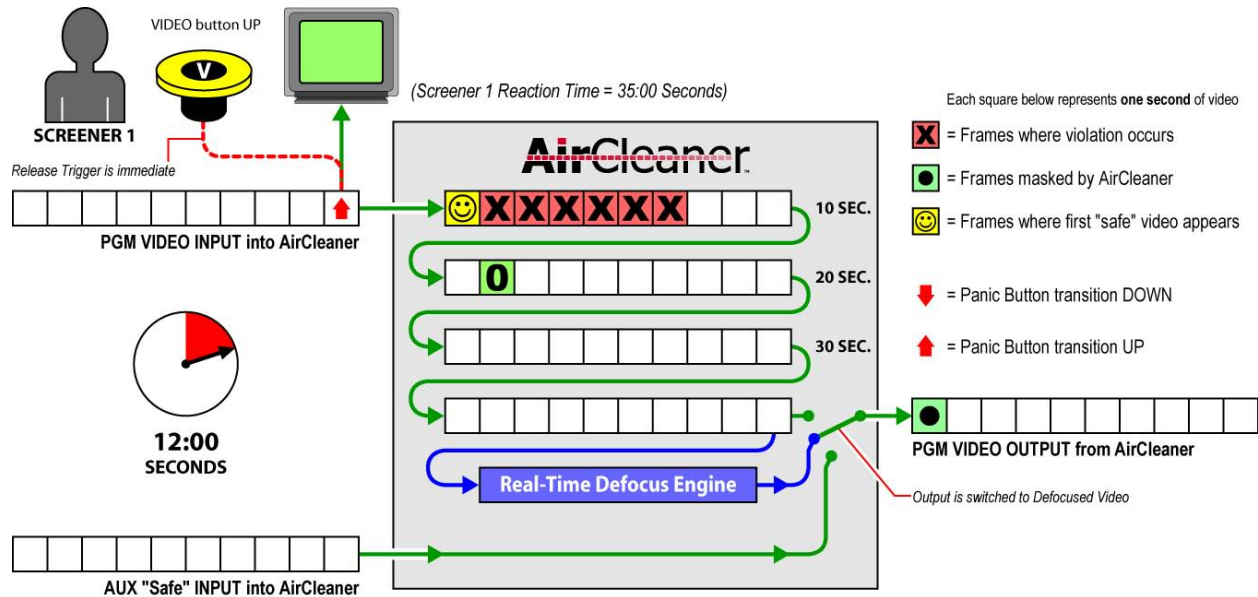


Figure 4-22. Overly Large Reaction Time: Elapsed time of 11:00 seconds

4. **TIME 12:00** | After one more second has elapsed (12 seconds in total) the human operator has released the VIDEO panic button. AirCleaner will mark that frame of video as the end of the violation (as shown by the upward arrow). Notice the video output is already displaying masked video, a full 33 seconds before the actual start of the violation content. All of the content between the actual violation material and the output of the delay pipeline will be unnecessarily masked by AirCleaner.



**Figure 4-23.** Overly Large Reaction Time: Elapsed time of 12:00 seconds

## User Configurations

AirCleaner can be configured for a variety of purposes and applications, but the following four user configurations are deemed to be useful for most broadcasters. Each of the four user mode descriptions are followed with the significant menu parameters required to obtain that particular configuration of AirCleaner. Refer to ["AirCleaner Menu Navigation" on page 68](#) for more information.

These user modes are intended to be used only as a guideline. In most cases, the video and audio pathways will have the same delay; however, because of AirCleaner's unique architecture, there is provision for independent control of the audio and video delays to compensate for audio/video synchronization errors of the incoming audio/video feed. For sake of simplicity, this synchronizing parameter has been left out of the user diagrams. Refer to ["PGM Audio Offset" on page 73](#) for more information.

Once the AirCleaner is programmed to suit a particular need, please remember to save the configuration of the parameters, as detailed in the paragraph titled: ["SAVE CHANGES made in the Options Menu" on page 70](#) below.





### Mode 1: One Screener / Switch to Safe Feed

This operational mode accommodates one screener, and the audio inputs/outputs are embedded in the serial digital video input/output.

At the VIDEO trigger point, the VISUAL violation is masked with a switch to an undelayed “AUX” safe feed, for the duration the VIDEO Panic Button is held down.

At the AUDIO trigger point, the AURAL violation is masked by a switch to the “AUX” safe input feed, for the duration the AUDIO Panic Button is held down; alternatively, the audio can be programmed to “Mute”.

The total delay is dependent on the AirCleaner model and format of the video. A set of Reaction Time parameters are also available for the screener, for audio and video.

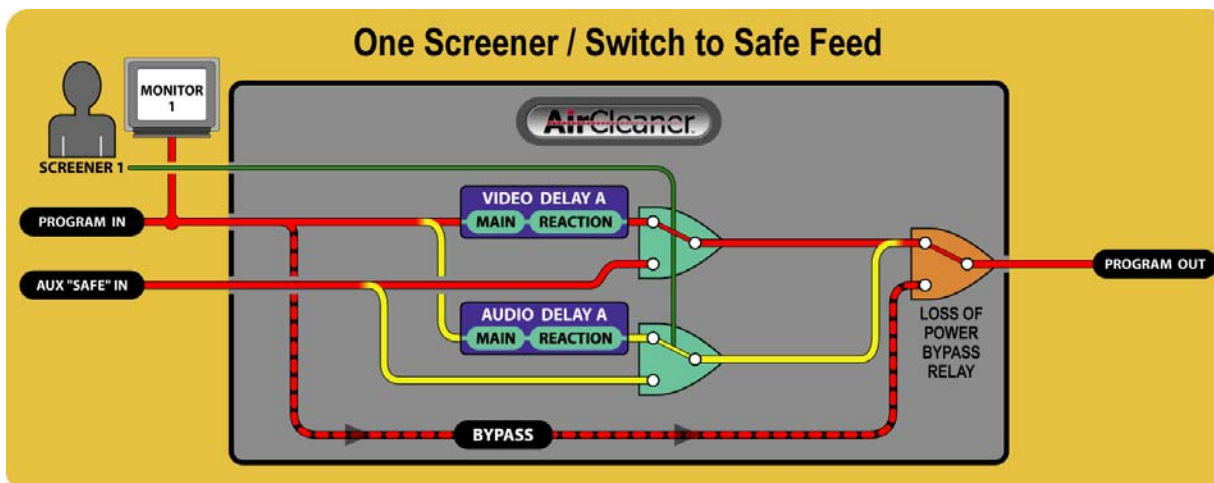


Figure 4-24. User Mode 1: One Screener / Switch to Safe Feed

#### Significant Parameters / MAIN Menu:

- Screeners = One
- Total PGM Delay = 8:00 (Value is only a suggestion)
- On Video Trigger = Switch to AUX
- On Audio Trigger = Switch to AUX
- Video Reaction 1 = 1:15 (Value is only a suggestion)
- Audio Reaction 1 = 1:15 (Value is only a suggestion)

#### Significant Parameters / OPTIONS Menu:

- PGM IN Audio = Embedded
- AUX IN Audio = Embedded
- Embed. Audio OUT = ON





## Mode 2: Two Screeners / Switch to Safe Feed

This operational mode accommodates two screeners in series, and the audio inputs/outputs are embedded in the serial digital video input/output. A violation missed by Screener 1 can be masked by Screener 2.

At the VIDEO trigger point, the VISUAL violation is masked with a switch to an undelayed “AUX” safe feed, for the duration the VIDEO Panic Button is held down.

At the AUDIO trigger point, the AURAL violation is masked by a switch to the “AUX” safe input feed, for the duration the AUDIO Panic Button is held down; alternatively, the audio can be programmed to “Mute”.

The total delay is dependent on the AirCleaner model and video format. The total delay in AirCleaner can be divided as desired for the two screeners. A set of Reaction Time parameters are also available for each screener; one for audio and one for video.

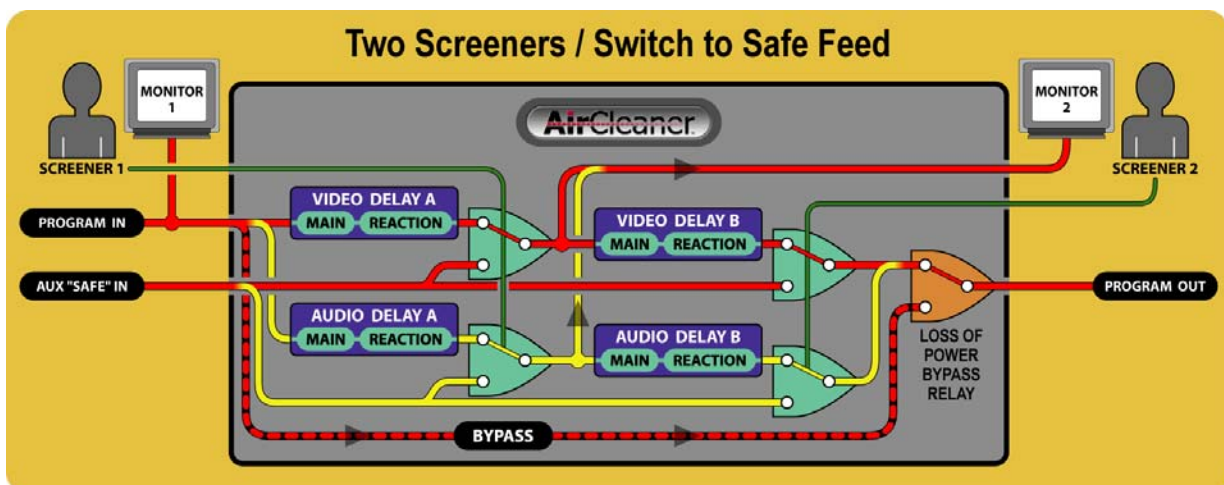


Figure 4-25. Mode 2: Two Screeners / Switch to Safe Feed

### Significant Parameters / MAIN Menu:

- Screeners = Two
- Total PGM Delay = 10:00 (Value is only a suggestion)
- On Video Trigger = Switch to AUX
- On Audio Trigger = Switch to AUX
- Video Reaction 1 = 1:15 (Value is only a suggestion)
- Audio Reaction 1 = 1:15 (Value is only a suggestion)
- Video Reaction 2 = 1:15 (Value is only a suggestion)
- Audio Reaction 2 = 1:15 (Value is only a suggestion)

### Significant Parameters / OPTIONS Menu:

- PGM IN Audio = Embedded
- AUX IN Audio = Embedded
- Embed. Audio OUT = ON



### Mode 3: One Screener / Switch to Defocus

This operational mode accommodates one screener, and the audio inputs/outputs are embedded in the serial digital video input/output.

At the VIDEO trigger point, the VISUAL violation is masked with a switch to the internal effects processor in AirCleaner that provides a “soft defocus” of the live video content for the duration the VIDEO panic button is held down. The transition into this defocus is also programmable; a “cut” in to and out from the defocus can be made, or a “ramp” in to and out from the defocus can be made; with a user-defined ramp duration. This simulates a rack camera defocus/focus operation, and is more realistic than a simple cut to defocused video. All of this is programmed by the “Defocus Ramp” parameter (if this parameter is set to zero, then a “cut” is made).

At the AUDIO trigger point, the AURAL violation is masked by a simple “Mute”, for the duration the VIDEO Panic Button is held down; alternatively, the audio can be programmed to switch to the “AUX” safe input feed. The total delay is dependent on the AirCleaner model and format of the video. A set of Reaction Time parameters are also available for the screener, for audio and video.

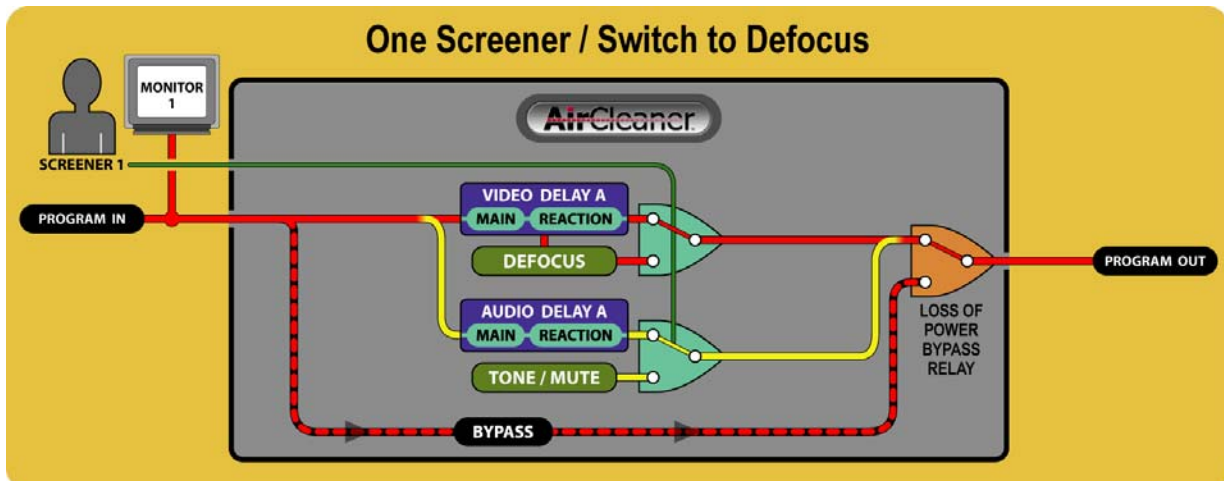


Figure 4-26. Mode 3: One Screener / Switch to Defocus

#### Significant Parameters / MAIN Menu:

- Screeners = One
- Total PGM Delay = 8:00 (Value is only a suggestion)
- On Video Trigger = Defocus
- Defocus = 65 (Value is only a suggestion)
- Defocus Ramp = 1:00 (Value is only a suggestion)
- On Audio Trigger = Mute
- Video Reaction 1 = 1:15 (Value is only a suggestion)
- Audio Reaction 1 = 1:15 (Value is only a suggestion)

#### Significant Parameters / OPTIONS Menu:

- PGM IN Audio = Embedded
- AUX IN Audio = Embedded
- Embed. Audio OUT = ON



## Mode 4: Two Screeners / Switch to Defocus

This operational mode accommodates two screeners in series, and the audio inputs/outputs are embedded in the serial digital video input/output. A violation missed by Screener 1 can be masked by Screener 2.

The VIDEO and AUDIO trigger reactions are identical to those as described in the description above: [Mode 3: One Screener / Switch to Defocus](#).

The total delay is dependent on the AirCleaner model and video format. The total delay in AirCleaner can be divided as desired for the two screeners. A set of Reaction Time parameters are also available for each screener; one for audio and one for video.

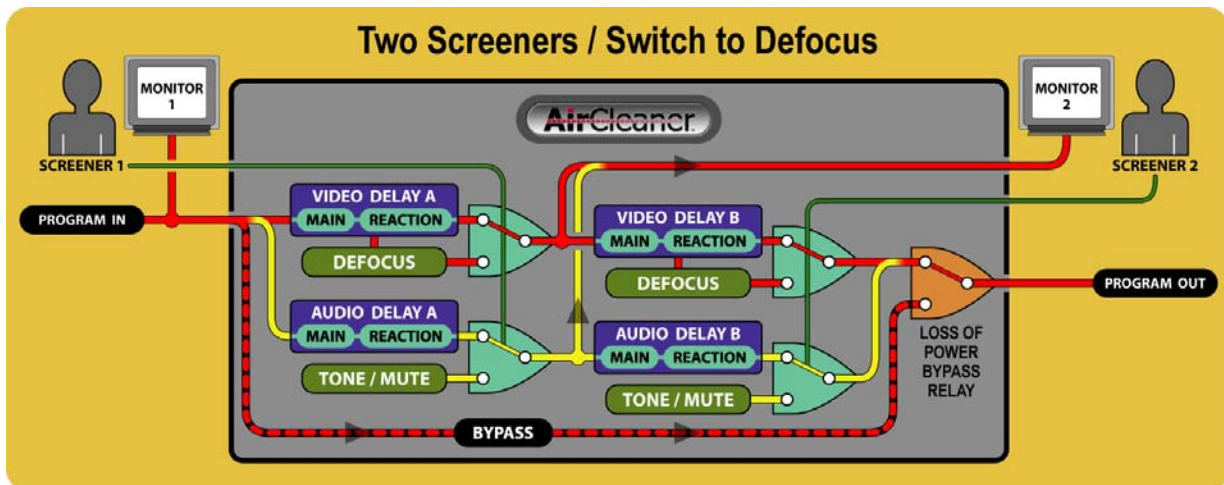


Figure 4-27. Mode 4: Two Screeners / Switch to Defocus

### Significant Parameters / MAIN Menu:

- Screeners = Two
- Total PGM Delay = 10:00 (Value is only a suggestion)
- On Video Trigger = Defocus
- Defocus = 65 (Value is only a suggestion)
- Defocus Ramp = 1:00 (Value is only a suggestion)
- On Audio Trigger = Mute
- Video Reaction 1 = 1:15 (Value is only a suggestion)
- Audio Reaction 1 = 1:15 (Value is only a suggestion)
- Video Reaction 2 = 1:15 (Value is only a suggestion)
- Audio Reaction 2 = 1:15 (Value is only a suggestion)

### Significant Parameters / OPTIONS Menu:

- PGM IN Audio = Embedded
- AUX IN Audio = Embedded
- Embed. Audio OUT = ON

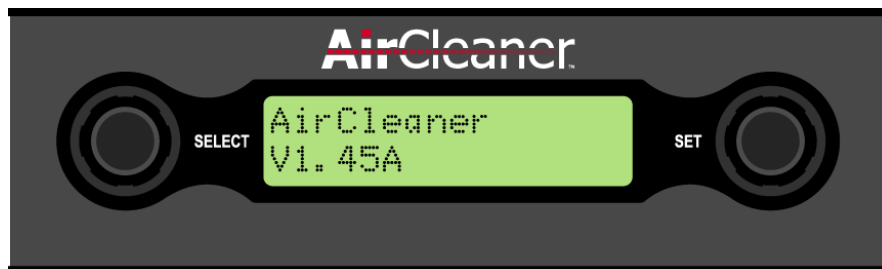
4

## Programming AirCleaner

This section describes the basic operation of the control panel found on the front of the AirCleaner chassis.

### Control Panel Basics

The AirCleaner control panel consists of two rotary knobs (each with an integrated push-button) and an illuminated two-line LCD, as shown below.



**Figure 4-28.** AirCleaner Control Panel user interface

In the vast majority of operations, the information shown in the LCD has the following structure:

- TOP line: Displays the active menu parameter
- BOTTOM line: Displays the value of the active parameter

Of course there are exceptions to this rule, but for the most part this is the format of the information shown in the LCD. For example, the information in the following display:

The image shows a close-up of the LCD screen from the control panel. It displays two lines of text in a green, monospaced font. The top line reads "Total PGM Delay" and the bottom line reads "8:15". The text is centered on the screen.

...shows the active menu parameter Total PGM Delay (Total Program Delay) with the value of this parameter set to "8:15" (eight seconds, fifteen frames).

In the vast majority of operations, the two rotary knobs are used as follows:

- SELECT rotary knob: Turn to select parameters within the active menu.
- SET rotary knob: Turn to adjust parameter values for the menu item that is currently active.

### *Adjusting Parameter Values*

The SET knob is always used to adjust parameter values. Whenever a given parameter is active in the LCD, turning the SET knob clockwise and/or counter-clockwise will adjust the value for the active parameter.

In the example menu shown above (for Total PGM Delay) turning the SET

knob will adjust the duration of the program delay.

## **WARNING DO NOT ADJUST PARAMETERS WHILE LIVE "ON-AIR"**

*Changes made to all parameters in the Main Menu will take effect as the parameter is being changed. Depending on the parameter being changed, this could disrupt the LIVE audio/video outputs! Changes made to all parameters in the Options Menu require:*

- TURN the SELECT knob to reveal the "Save Changes?" item.
- PUSH the SET knob to "OK" the save operation.

*Saving any change to any parameter in the Options Menu could severely disrupt the audio/video outputs from AirCleaner; these changes should NEVER be saved while using AirCleaner live on the air!*

4

### *Fast Adjust for Wide-Range Parameter Value Changes*

For some parameters, the range of adjustment can cover a very large scale. For example, the H OUT Timing parameter in the Options Menu has an adjustment range from 0 to 2199. Since there are 32 detent clicks on the rotary knobs, and each "click" of the knob changes the parameter by a value of one, it would take over 68 complete rotations of the knob to get from one end of the range to the other (for this parameter). This can take quite a long time.

To help make wide-range parameter adjustments much faster, the SELECT knob can be used to modify the SET knob adjustment behavior.

To make a fast adjustment of any active menu parameter:

1. PUSH and HOLD the SELECT knob.
2. TURN the SET knob (while holding down the SELECT knob).

The value for the active parameter will now adjust faster than when the SET knob is turned by itself.

### Integrated Push-Buttons in Rotary Knobs

The integrated push-button within the SELECT and SET knobs are used to confirm changes made to parameters in the Options Menu, as well as confirming (or canceling) system parameter changes, as instructed in the LCD. For example, the following display is asking the user to confirm or cancel to changes made to the menu parameters:

```
Save Changes?
< EXIT      OK >
```

...in this situation, PUSH the left-hand SELECT knob ( < EXIT ) to "Cancel" the changes, or PUSH the right-hand SET knob ( OK > ) to confirm the changes.



## AirCleaner Menu Navigation

The AirCleaner menu system consists of three primary menu trees:

- **Main Menu** Consists of the Primary System Configuration: such as configuring one- or two-screener mode, program delay value, user reaction times, etc.
- **Options Menu** Consists of the Engineering Setup Parameters: such as video format, reference source select, video timing, etc.
- **User Memory Menu** Consists of three User Memory “Snap-Shots” of all the system setup parameters. This provides a convenient method to quickly save and recall pre-defined setups.

### **WARNING DO NOT ADJUST PARAMETERS WHILE LIVE “ON-AIR”**

*Changes made to all parameters in the Main Menu will take effect as the parameter is being changed. Depending on the parameter being changed, this could disrupt the LIVE audio/video outputs! Changes made to all parameters in the Options Menu require:*

- TURN the SELECT knob to reveal the “Save Changes?” item.
- PUSH the SET knob to “OK” the save operation.

*Saving any change to any parameter in the Options Menu could severely disrupt the audio/video outputs from AirCleaner; these changes should NEVER be saved while using AirCleaner live on the air!*

Whenever AirCleaner is power on, by default the Main Menu is active in the control panel. After power-on, the front-panel LCD display will show one of two display screens:

```
Model-1 / 2GB  
V1.45A
```

*(This displays the current software version)*

or...

```
Screener's  
= One
```

*(The “Screener’s” parameter is the first item in the Main Menu)*

If the “AirCleaner” display is shown (instead of “Screener’s”), then the control panel had been programmed to be “locked out” from control, which prevents accidental parameter changes to AirCleaner while it’s in use live, on the air. Unlocking the control panel is a simple procedure, as described below.



## Unlocking the Control Panel

If the AirCleaner control panel happens to be locked out, it's a simple matter to unlock the menu control:

1. TURN or PUSH either rotary knob; this presents the following on the LCD:

```
To Unlock
< Push Both >
```

2. PUSH BOTH rotary knobs at the same time. The control panel is now unlocked.

## Locking the Control Panel

If at any time the AirCleaner control panel needs to be locked out:

1. PUSH BOTH rotary knobs at the same time. The control panel is now locked, and the LCD appears as follows:

```
Model-1 / 2GB
V1.45A
```

*(This displays the current software version)*

Turning or pressing either knob will then present the “Unlock” display to the LCD. If nothing is done, then the LCD returns to the display shown above after a few seconds.

## Navigating to the Main Menu

If the Options Menu or User Memory Menu happen to be active: to navigate back to the Main Menu, follow one of the two procedures below, depending on which menu is currently active:

### Navigate to Main Menu from Options Menu

Any time the Options Menu is active, navigate to the Main Menu as follows:

1. TURN the SELECT knob clockwise several times until the last item in the Options Menu parameter listing is displayed in the LCD:

```
Save Changes?
< EXIT OK >
```

2. PUSH the SET knob (OK >) to save recent changes.
3. The Main Menu is now active in the LCD (either “= ONE” or “= TWO” will be displayed for the “Screeners” parameter):

```
Screeners
= One
```

Turning the SELECT knob will now navigate within the Main Menu.





### *Navigate to Main Menu from User Memory Menu*

Any time the User Memory Menu is active, navigate to the Main Menu as follows:

1. TURN the SELECT knob clockwise several times until the last item in the User Memory Menu parameter listing is displayed in the LCD:

```
Finished?  
< YES      NO >
```

2. PUSH SELECT knob ( < YES ).
3. The Main Menu is now active in the LCD (either “= ONE” or “= TWO” will be displayed for the “Screeners” parameter):

```
Screeners  
= One
```

Turning the SELECT knob will now navigate within the Main Menu.

## **Navigating to Options and User Memory Menus**

Both the Options Menu and User Memory Menu are selectable items found within the Main Menu. The Options Menu selection item is located at the very end of the Main Menu parameter listings, while the User Memory Menu item is the penultimate (second to last) item in the Main Menu parameter listings.

### *Navigate to the Options Menu*

Any time the Main Menu is active, navigate to the Options Menu as follows:

1. TURN the SELECT knob clockwise several times until the last item in the menu parameter listing is displayed in the LCD:

```
Options Menu  
Select >
```

2. PUSH the SET knob ( Select > ) to select the Options Menu.

Turning the SELECT knob will now navigate within the Options Menu.

### *SAVE CHANGES made in the Options Menu*

Any time changes are made to any parameter in the Options Menu, the changes must be saved manually while the Options Menu is still active:

1. TURN the SELECT knob clockwise several times until the last item in the Options Menu parameter listing is displayed in the LCD:

```
Save Changes?  
< EXIT      OK >
```

2. PUSH the SET knob ( OK > ) to proceed with the SAVE operation.
3. The Main Menu is now active in the LCD (either “= ONE” or “= TWO” will be displayed for the “Screeners” parameter) (either “= ONE” or “=

TWO" will be displayed for the "Screeners" parameter):

```
Screeners
= One
```

Turning the SELECT knob will now navigate within the Main Menu.



### *Navigate to the User Memory Menu*

Any time the Main Menu is active, navigate to the User Memory Menu as follows:

1. TURN the SELECT knob clockwise several times until the last item in the menu parameter listing is displayed in the LCD:

```
Options Menu
Select >
```

2. TURN the SELECT knob ONE CLICK counter-clockwise; this displays the following in the LCD:

```
User Memory Menu
Select >
```

3. PUSH the SET knob (Select >) to select the User Memory Menu.

Turning the SELECT knob will now navigate within the User Memory Menu.



## Control Panel Menu Item Descriptions

This section of this chapter describes in detail the menu parameter items in each of the three main menus: Main Menu, Options Menu and User Memory Menu.

### **WARNING DO NOT ADJUST PARAMETERS WHILE LIVE "ON-AIR"**

*Changes made to all parameters in the Main Menu will take effect as the parameter is being changed. Depending on the parameter being changed, this could disrupt the LIVE audio/video outputs!*

*Changes made to all parameters in the Options Menu require:*

- TURN the SELECT knob to reveal the "Save Changes?" item.
- PUSH the SET knob to "OK" the save operation.

*Saving any change to any parameter in the Options Menu could severely disrupt the audio/video outputs from AirCleaner; these changes should NEVER be saved while using AirCleaner live on the air!*

### Main Menu Parameters

The items in the Main Menu are used to program Primary System Configuration parameters of AirCleaner. Changes made to any of the parameter values in the Main Menu are immediately enacted and saved to the operating memory inside AirCleaner.

The following descriptions appear in the order in which they appear in the menu tree:

Screeners  
= One

This parameter has two possible settings:

- = One  
A single operator (screener) will control AirCleaner. The entire "total program delay" value is applied to this single user. This "Screener 1" operator monitors the incoming audio/video feeding into AirCleaner to screen for violations; the PGM OUT provides the delayed "on-air" audio/video from AirCleaner.
- = Two  
Two operators (screeners) will control AirCleaner. The "total program delay" value is split between the two operators. The "Screener 1" operator monitors the incoming audio/video feeding into AirCleaner, while the "Screener 2" operator monitors the audio/video output from the TAP OUT of AirCleaner to screen for violations; the PGM OUT provides the delayed "on-air" audio/video from AirCleaner.

The `Screeners` parameter determines how many operators will be controlling AirCleaner (either one or two operators, or "Screeners"). When set to "Two", the "Screener 2 Delay" parameter determines how much of the total program delay is assigned to Screener 2.



Total PGM Delay  
= 10:00

This parameter has the following adjustable range:

- = 0:01                      Minimum value.
- = 60:00                    Maximum value (*depending on memory installed, and the video format AirCleaner is currently programmed to use; maximum may be shorter than this*).

The Total PGM Delay parameter determines the total audio/video delay (in time) used inside AirCleaner; this is the delay between the audio/video on the PGM IN feed versus the PGM OUT. If the Screener's parameter is set to "One", then the entire delay is used for that single operator. If the Screener's parameter is set to "Two" users, then the total program delay is divided between the two users, with the Screener 2 Delay parameter determining how much of the total delay program delay is allocated to Screener 2.

The Total PGM Delay parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).

PGM Audio Offset  
= 0:00.0

This parameter has the following adjustable range:

- = 0:00.0                    Minimum value.
- = 10:00.0                  Maximum value +10 or -10 Seconds (*depends upon and is limited by the "Total PGM Delay" value*).

The adjustment increments in tenths of a video frame in the menu display.

The PGM Audio Offset parameter is used to correct any possible audio-to-video synchronization errors on the incoming audio/video feeding the PGM IN connectors on the rear panel of AirCleaner. If an upstream process causes the audio to be "slipped" in time with respect to the video, this parameter can correct the audio/video synchronization error.

The maximum possible PGM Audio Offset that can be programmed is +/-10 seconds. However, this range depends on the current Total PGM Delay value; if the total program delay is set below 10 seconds, the range of the PGM Audio Offset parameter will be decreased accordingly.

This parameter will increase or decrease the total amount of the PGM IN audio delay. So, to advance the audio relative to video (which decreases the audio delay) a value up to the value of the current Total PGM Delay may be entered, or to a maximum of -10 seconds (whichever is smaller). In order to delay the audio relative to video (which increases the audio delay) a value up to the value of the current Total PGM Delay parameter may be entered, or to a maximum of +10 seconds (whichever is smaller).



(The following parameter appears only when: Screeners = Two)

Screener 2 Delay  
= 5:00

This parameter has the following adjustable range:

- = 0:01                      Minimum value.
- = 60:00                    Maximum value (*depending on memory installed, the video format AirCleaner is currently programmed to use, and the value of the “Total PGM Delay” parameter; maximum may be shorter than this*).

The Screener 2 Delay parameter assigns a portion of the delay that’s set by the Total PGM Delay to the second screener (operator), who in turn monitors the audio/video TAP OUT feed from AirCleaner for content violations. In other words, the Screener 2 Delay parameter divides the Total PGM Delay value, and provides this amount of delay for the second screener on the TAP OUT feed.

For example, if the Total PGM Delay parameter is set to 8:00 seconds, and the Screener 2 Delay parameter is set to 3:00 seconds, then the PGM IN feed is delayed by 3:00 seconds before arriving at the TAP OUT for Screener 2; it then takes an additional 5:00 seconds for the audio/video to then arrive at the PGM OUT from AirCleaner.

The Screener 2 Delay parameter adjusts the delay between the audio/video on the PGM IN feed versus the TAP OUT. If the Screeners parameter is set to “One”, the entire delay is used for one operator, and the Screener 2 Delay parameter isn’t even available. If the Screeners parameter is set to “Two” users, then the total program delay is divided between the two users; the Screener 2 Delay parameter then determines how much of the total delay program delay is allocated to Screener 2.

The Screener 2 Delay parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), the current setting of the Total PGM Delay parameter, as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).



Video Reaction 1  
= 1:15

This parameter has the following adjustable range:

- = 0: 01                      Minimum value.
- = 60: 00                      Maximum value (*depending on memory installed, the video format AirCleaner is currently programmed to use, and the value of the “Total PGM Delay” parameter; maximum may be shorter*).

The Video Reaction 1 parameter assigns the reaction time for the Screener 1 operator when the VIDEO Panic Button is depressed for Screener 1. This parameter will “back-time” the button press to compensate for the time it takes the operator to see a violation and then to react and press the VIDEO panic button.

The value of Video Reaction 1 should be determined by testing the visual reaction time of the operator. Refer to [“Reaction Time” on page 56](#) for more info.

The Video Reaction 1 parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), the current setting of the Total PGM Delay parameter, as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).

Audio Reaction 1  
= 1:15

This parameter has the following adjustable range:

- = 0: 01                      Minimum value.
- = 60: 00                      Maximum value (*depending on memory installed, the video format AirCleaner is currently programmed to use, and the value of the “Total PGM Delay” parameter; maximum may be shorter*).

The Audio Reaction 1 parameter assigns the reaction time for the Screener 1 operator when the AUDIO Panic Button is depressed for Screener 1. This parameter will “back-time” the button press to compensate for the time it takes the operator to hear a violation and then to react and press the AUDIO panic button.

The value of Audio Reaction 1 should be determined by testing the aural reaction time of the operator. Refer to [“Reaction Time” on page 56](#) for more info.

The Audio Reaction 1 parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), the current setting of the Total PGM Delay parameter, as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).



(The following parameter appears only when: Screeners = Two)

Video Reaction 2  
= 1:15

This parameter has the following adjustable range:

- = 0: 01                      Minimum value.
- = 60: 00                    Maximum value (*depending on memory installed, the video format AirCleaner is currently programmed to use, and the value of the “Total PGM Delay” parameter; maximum may be shorter*).

The Video Reaction 2 parameter assigns the reaction time for the Screener 2 operator when the VIDEO Panic Button is depressed for Screener 2. This parameter will “back-time” the button press to compensate for the time it takes the operator to see a violation and then to react and press the VIDEO panic button.

The value of Video Reaction 2 should be determined by testing the visual reaction time of the operator. Refer to [“Reaction Time” on page 56](#) for more info.

The Video Reaction 2 parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), the current setting of the Total PGM Delay parameter, as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).

(The following parameter appears only when: Screeners = Two)

Audio Reaction 2  
= 1:15

This parameter has the following adjustable range:

- = 0: 01                      Minimum value.
- = 60: 00                    Maximum value (*depending on memory installed, the video format AirCleaner is currently programmed to use, and the value of the “Total PGM Delay” parameter; maximum may be shorter*).

The Audio Reaction 2 parameter assigns the reaction time for the Screener 2 operator when the AUDIO Panic Button is depressed for Screener 2. This parameter will “back-time” the button press to compensate for the time it takes the operator to hear a violation and then to react and press the AUDIO panic button.

The value of Audio Reaction 2 should be determined by testing the aural reaction time of the operator. Refer to [“Reaction Time” on page 56](#) for more info.

The Audio Reaction 2 parameter has a variable range that depends on the video format of AirCleaner (set in the Options Menu), the current setting of the Total PGM Delay parameter, as well as the amount of delay memory fitted in the machine at time of purchase. The delay ranges from 1 Frame up to 60 Seconds in the case of SD 525 or 625 video format; or it can range from 1 Frame up to 6 Seconds in the case of HD 1080i video with AirCleaner Model-1 (which is fitted with a smaller amount of delay memory, compared to Model-2).



On Video Trigger  
= Defocus



This parameter has three possible settings:

- = Defocus      When the VIDEO Panic Button is pressed by either operator (Screener 1 or Screener 2) the visual violation is masked by defocusing the live image. The amount of defocus is determined by the Defocus Level parameter.
- = Luma Matte      When the VIDEO Panic Button is pressed by either operator (Screener 1 or Screener 2) the visual violation is masked by switching to a flat-screen luminance matte image. The luminance value of matte image is determined by the Luma Matte Level parameter.
- = AUX IN      When the VIDEO Panic Button is pressed by either operator (Screener 1 or Screener 2) the visual violation is masked by switching to the AUX IN video.

**NOTE** *The visual content is masked for the total amount of time the VIDEO Panic Button is held down (plus any additional Reaction Time). In two-screener mode, the visual content is masked for the amount of time BOTH the VIDEO Panic Buttons are held down. Refer also to "Reaction Time" on page 56 for more information.*

(The following parameter appears only when: On Video Trigger = Defocus)

Defocus Level  
= 50

This parameter has the following adjustable range:

- = 0      Minimum value.
- = 100      Maximum value.

The Defocus Level parameter is available in the Main Menu listing only when the On Video Trigger parameter is set to Defocus, and determines the amount of defocusing applied to the live image when the VIDEO Panic Button is pressed and held down.

To properly adjust the Defocus Level parameter:

1. Feed a live video input into the PGM IN of AirCleaner.
2. Ensure the On Video Trigger parameter is set to = Defocus.
3. While viewing PGM OUT from AirCleaner, HOLD DOWN the VIDEO Panic Button. After the "Total Program Delay" time has expired, the PGM OUT will display the live defocused image; the amount of defocus will then change with the rotation of the SET knob.
4. TURN the SET knob on the front of AirCleaner to the defocus value desired.

A change made to this parameter is automatically saved in the active online memory.



(The following parameter appears only when: On Video Trigger = Defocus)

Defocus Ramp  
= 0:15

This parameter has the following adjustable range:

- = 0:00 Minimum value.
- = 30:00 Maximum value (depending on memory installed, the video format AirCleaner is currently programmed to use, the value of the “Video Reaction Time” parameters, and the value of the “Total PGM Delay” parameter; maximum may be shorter than this).

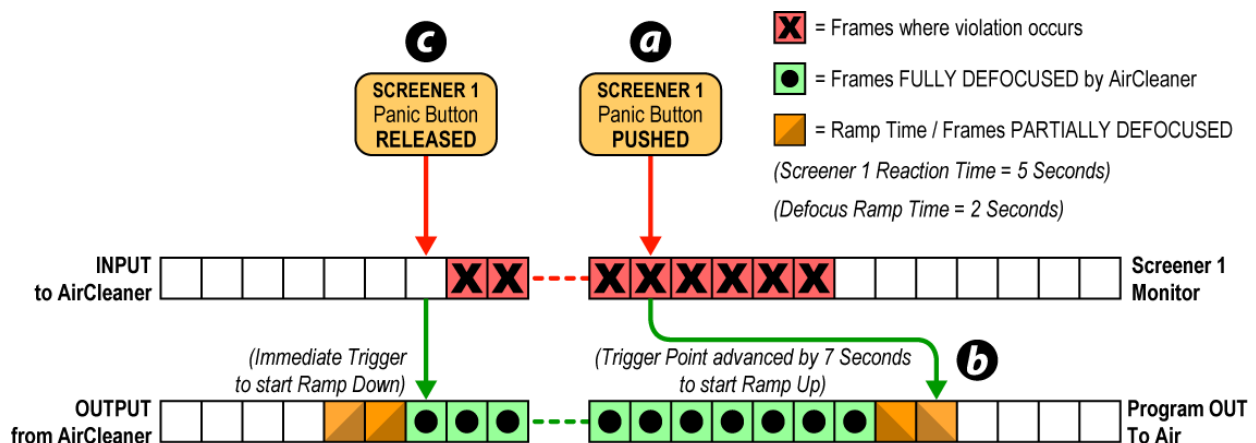
The Defocus Ramp parameter is available in the Main Menu listing only when the On Video Trigger parameter is set to Defocus, and determines the amount of time it takes to transition from the live image to the completely defocused image when the VIDEO Panic Button is pressed and held down.

When set to a value of 0:00, the Defocus Ramp is essentially turned OFF; the result is the transition from the live image to the fully defocused image occurs as a “Cut” transition.

When set to any value other than 0:00, the Defocus Ramp will cause AirCleaner to gradually transition from the live image to the fully defocused image; with a sufficiently long ramp time (for example, 1:00 or more), a camera rack focus can be simulated when the VIDEO Panic Button is pressed and held down.

Refer to Figure 4-29 below. Notice the time it takes to ramp UP the defocus is advanced relative to the VIDEO Panic Button trigger (a). Furthermore, if the screener Video Reaction Time parameter is programmed, the ramp trigger is advanced ahead of this reaction time (b). In other words, the trigger to start the ramp UP is advanced by (Reaction Time) + (Ramp Time). This ensures the first frame of the violation is completely defocused at the end of the defocus “ramp up” time.

Likewise, when the VIDEO Panic Button is released at the end of the violation (c), the start of the ramp down will occur just after the button is released, to ensure the entire visual violation is masked by the fully defocused image.



(The following parameter appears only when: On Video Trigger = Defocus)

Luma Matte Level  
= 50



This parameter has the following adjustable range:

- = 0 Minimum value.
- = 100 Maximum value.

The Luma Matte Level parameter is available in the Main Menu listing only when the On Video Trigger parameter is set to Luma Matte, and determines the luminance value of the Luma Matte image when the VIDEO Panic Button is pressed and held down.

To properly adjust the Luma Matte Level parameter:

1. Feed a live video input into the PGM IN of AirCleaner.
2. Ensure the On Video Trigger parameter is set to = Luma Matte.
3. While viewing PGM OUT from AirCleaner, HOLD DOWN the VIDEO Panic Button. After the “Total Program Delay” time has expired, the PGM OUT will display the live luma matte image; the luminance value of the luma matte will then change with the rotation of the SET knob.
4. TURN the SET knob on the front of AirCleaner to obtain the luma matte value desired.

A change made to this parameter is automatically saved in the active online memory.

On Audio Trigger  
= Audio AUX IN

This parameter has two possible settings:

- Mute When the AUDIO Panic Button is pressed by either operator (Screener 1 or Screener 2) the aural violation is masked by muting the audio.
- Audio AUX IN When the AUDIO Panic Button is pressed by either operator (Screener 1 or Screener 2) the aural violation is masked by switching to the Audio AUX IN audio signal.

**NOTE** *The aural content is masked for the total amount of time the AUDIO Panic Button is held down (plus any additional Reaction Time). In two-screener mode, the aural content is masked for the amount of time BOTH the AUDIO Panic Buttons are held down. Refer also to “Reaction Time” on page 56” for more information.*



Analog Audio OUT  
= PGM OUT 1/2

This parameter has four possible settings:

- = PGM OUT 1/2      Monitors the program audio tracks 1 and 2 on the 3.5mm analog audio output jack on AirCleaner's rear panel.
- = PGM OUT 3/4      Monitors the program audio tracks 3 and 4 on the 3.5mm analog audio output jack on AirCleaner's rear panel.
- = PGM OUT 5/6      Monitors the program audio tracks 5 and 6 on the 3.5mm analog audio output jack on AirCleaner's rear panel.
- = PGM OUT 7/8      Monitors the program audio tracks 7 and 8 on the 3.5mm analog audio output jack on AirCleaner's rear panel.

The Analog Audio OUT parameter selects which program output stereo Audio tracks are monitored on the 3.5mm Analog Audio Output jack on the rear panel of the AirCleaner chassis.

Analog Audio Vol  
= 100

This parameter has the following adjustable range:

- = 0      Minimum value.
- = 255      Maximum value.

The Analog Audio Vol parameter adjusts the audio level on the 3.5mm Analog Audio Output jack on the rear panel of the AirCleaner chassis.



```
Menu Lockout Now
Select >
```

With the Menu Lockout Now parameter in view, the AirCleaner control panel can be locked out from accidental use. This is a good idea when the AirCleaner is being used live, on-air. When the control panel is locked out, any movement of either rotary knob (SELECT or SET knob) will present the LCD with a display that prompts the user to unlock the control panel again.

To lockout the menu control with this menu item:

1. With the Menu Lockout Now in the display:

```
Menu Lockout Now
Select >
```

2. PUSH the SET knob ( Select > ) to select the Menu Lockout function. The LCD then shows the “AirCleaner” model and current software version:

```
Model-1 / 2GB
V1.45A
```

This display indicates that the menu control is now locked out.

Any time the AirCleaner control panel needs to be unlocked (with the “AirCleaner” software version displayed):

1. TURN or PUSH either rotary knob. This presents the following LCD message:

```
To Unlock
< Push Both >
```

2. PUSH BOTH rotary knobs at the same time. The control panel is now unlocked, and the LCD displays the first item in AirCleaner’s Main Menu (either “= ONE” or “= TWO” will be displayed for the “Screeners” parameter):

```
Screeners
= One
```

```
User Memory Menu
Select >
```

With this parameter in view, PUSH the SET knob ( Select > ) to select the User Memory Menu tree. The LCD then shows the first parameter in the User Memory Menu:

```
Load Setup 1?
LOAD >
```

Refer to the next section for a complete description of the User Memory Menu.



## User Memory Menu Parameters

The parameters in the User Memory Menu are used to load and save up to three complete “snap shots” of all the setup parameters in AirCleaner.

The following descriptions appear in the order in which they appear in the menu tree:

```
Load Setup 1?  
LOAD >
```

### *Loading a User Memory Register*

To LOAD a pre-saved User Memory, perform the following procedure:

#### **WARNING DO NOT LOAD USER MEMORY WHILE LIVE “ON-AIR”**

*Loading a user memory register can change the video format of AirCleaner, as well as change other parameters that can severely disrupt the audio/video OUTPUTS from AirCleaner. NEVER load any User Memory registers while using AirCleaner live on the air!*

1. Select the User Memory Menu.
2. TURN the SELECT knob until the desired “Load Setup” user memory is displayed on the TOP line of the LCD (either 1, 2 or 3):

```
Load Setup 1?  
LOAD >
```

3. PUSH the SET knob ( LOAD > ) to load the user memory parameters into active memory.
4. The following message appears in the LCD:

```
Confirm Load  
< OK EXIT >
```

5. PUSH the SELECT knob (OK > ) to proceed with the LOAD operation.

*NOTE: The audio/video outputs are briefly disrupted during the memory load, and the first item in the Main Menu is displayed afterward.*

Save Setup 1?  
SAVE >



## *Saving a User Memory Register*

To SAVE all the setup parameters into a User Memory register, perform the following procedure:

### **WARNING**

### **DO NOT SAVE PARAMETERS WHILE LIVE "ON-AIR"**

*Changes made to most parameter values in the Options Menu can severely disrupt the audio/video OUTPUTS from AirCleaner when those changes are saved; NEVER change any of the Options Menu parameters while using AirCleaner live on the air!*

1. Select the User Memory Menu.
2. TURN the SELECT knob until the desired "Save Setup" user memory is displayed on the TOP line of the LCD (either 1, 2 or 3):

Save Setup 1?  
SAVE >

3. PUSH the SET knob ( SAVE > ) to load the user memory parameters into active memory.
4. The following message appears in the LCD:

Confirm Save  
< OK EXIT >

5. PUSH the SELECT knob ( OK > ) to proceed with the SAVE operation.

*NOTE: The first item in the Main Menu is displayed afterward.*





```
Factory Defaults
Select >
```

The **Factory Defaults** parameter will reset the entire AirCleaner user interface to the factory default settings. This should not be done unless absolutely sure, or asked to do so by Abekas technical support. Because this menu can be destructive, it has a secondary menu that appears when the SET knob is pushed to select the Factory Defaults.

**WARNING**
**DO NOT RESTORE FACTORY DEFAULTS  
WHILE LIVE "ON-AIR"**

*Loading the Factory Defaults can change the video format of AirCleaner, as well as change other parameters that can severely disrupt the audio/video OUTPUTS from AirCleaner. NEVER restore Factory Defaults while using AirCleaner live on the air!*

To restore the Factory Defaults:

1. TURN the **SELECT** knob to select **Factory Defaults** in the Options Menu:

```
Factory Defaults
Select >
```

2. PUSH the SET knob (for **Select >**).
3. The following message appears in the LCD:

```
Restore All?
< OK      EXIT >
```

4. PUSH the **SELECT** knob (for **OK >**) to confirm.

AirCleaner will recall all of the factory defaults, and return to the first parameter in the Options Menu.



## Options Menu Parameters

The parameters in the Options Menu are used to program the Engineering Setup Parameters of AirCleaner.

Unlike the Main Menu parameters, in which value changes are immediately and automatically activated as the given change is made; changes made to parameter values in the Options Menu are not activated immediately.

In order to enact and save any change to all parameter values in the Options Menu, turn the **SELECT** knob clockwise for several “clicks” to scroll down the menu listing to the very last item in the list, which presents the following display in the LCD:

```
Save Changes?
< EXIT      OK >
```

With the above message displayed:

- PUSH the SET knob ( **OK >** ) to save all the changes made to any and all parameters values that have been changed in the Options Menu. This will exit the Options Menu, and return the LCD screen to the first item in the Main Menu.
- PUSH the SELECT knob ( **< Cancel** ) to cancel any changes made.

### WARNING

### DO NOT SAVE PARAMETERS WHILE LIVE “ON-AIR”

*Changes made to most parameter values in the Options Menu can severely disrupt the audio/video OUTPUTS from AirCleaner when those changes are saved; NEVER change any of the Options Menu parameters while using AirCleaner live on the air!*

The following descriptions appear in the order in which they appear in the menu tree:

```
Video Format
= SD 525/59.94i
```

The Video Format parameter determines the video format of all the video inputs and outputs on AirCleaner. Four different video line standards (two HD and two SD) are provided, with a variety of frame rates for each of the two HD line standards. A total of twenty possible settings are included:

- = SD 525/59.94i Selects the 525 SD line standard.
- = SD 625/50.00i Selects the 625 SD line standard.
- = HD 720/60.00p Selects the 720 HD line standard. Possible frame rates include: 60.00p / 59.94p / 50.00p / 30.00p / 29.97p / 25.00p / 24.00p / 23.98p
- = HD 1080/59.94i Selects the 1080 HD line standard. Possible frame rates include: 60.00i / 59.94i / 50.00i / 24.00psF / 23.98psF / 30.00p / 29.97p / 25.00p / 24.00p / 23.98p

Any change made to the Video Format parameter will affect all video inputs and outputs on AirCleaner.



Genlock  
= Bi-Lvl REF IN

The Genlock parameter determines the locking reference source for AirCleaner. All audio/video outputs from AirCleaner will be locked to the source selected by this parameter.

This parameter has five possible settings:

- = Free Run      The AirCleaner audio/video outputs are not genlocked to any reference signal.
- = PGM Video IN      The AirCleaner audio/video outputs are all genlocked to the SD or HD SDI digital video signal present on the PGM IN digital video connector.
- = AUX Video IN      The AirCleaner audio/video outputs are all genlocked to the SD or HD SDI digital video signal present on the AUX IN digital video connector.
- = Bi-Lvl REF IN      The AirCleaner audio/video outputs are all genlocked to the analog video signal present on the REF IN connector. This analog video signal must have Bi-Level sync.
- = Tri-Lvl REF IN      The AirCleaner audio/video outputs are all genlocked to the analog video signal present on the REF IN connector. This analog video signal must have Tri-Level sync.

#### NOTE

*The REF IN connector on the AirCleaner chassis accepts an analog reference signal with either Bi-Level or Tri-Level sync. This analog reference signal must match the frame rate of the incoming SDI digital video signals feeding the PGM IN and AUX IN digital video connectors.*

*HD users can lock to Bi-Level reference as long as the frame rate of the Bi-Level reference matches the HD SDI digital video inputs. The REF IN connector is internally terminated, and has no loop-through connector.*

H OUT Timing  
= 0 Pixels

The H OUT Timing parameter adjusts the horizontal position of the PGM OUT and TAP OUT SDI digital video outputs relative to the reference source that's currently active.

This parameter has the following adjustable range:

- = 0 Pixels      Minimum value.
- = 2199 Pixels      Maximum value (*depending the video format AirCleaner is currently programmed to use the maximum may be smaller than this*).



V OUT Timing  
= 0 Lines

The V OUT Timing parameter adjusts the vertical position of the PGM OUT and TAP OUT SDI digital video outputs relative to the reference source that's currently active.

This parameter has the following adjustable range:

- = -10 Lines      Minimum value.
- = +10 Lines      Maximum value.

Pix Vert. Shift  
= 0

The Pix Vert. Shift parameter adjusts the vertical picture position of the PGM OUT and TAP OUT SDI digital video outputs relative the default picture position.

This parameter has the following adjustable range:

- = 0      Minimum value.
- = 50      Maximum value.

PGM IN Audio  
= SDI Embedded

The PGM IN Audio parameter determines which audio input to AirCleaner is used to supply the digital audio feeds for the PGM IN through the AirCleaner delay.

This parameter has two possible settings:

- = AES      Selects the discreet 8-track AES IN digital audio input connectors on the rear panel of AirCleaner as the PGM IN digital audio input source.
- = SDI Embedded      Selects the digital audio that is embedded in the SDI digital video stream feeding the PGM IN video input connector on the rear panel of AirCleaner as the PGM IN digital audio input source.



AUX IN Audio  
= SDI Embedded

The **AUX IN Audio** parameter determines which audio input to AirCleaner is used to supply the digital audio feeds for the **AUX IN** through the AirCleaner delay.

This parameter has two possible settings:

- = AES Selects the discreet 8-track **AES IN** digital audio input connectors on the rear panel of AirCleaner as the **AUX IN** digital audio input source.
- = SDI Embedded Selects the digital audio that is embedded in the SDI digital video stream feeding the **AUX IN** video input connector on the rear panel of AirCleaner as the **AUX IN** digital audio input source.

Embed. Audio OUT  
= ON

The **Embed. Audio OUT** parameter determines whether or not the SD/HD SDI digital video outputs from AirCleaner (labeled the **PGM OUT** and **TAP OUT** on the rear panel) have the digital audio embedded in the digital video stream.

This parameter has two possible settings:

- = ON Turns ON the embedded digital audio on the **PGM OUT** and **TAP OUT** digital video outputs.
- = OFF Turns OFF the embedded digital audio on the **PGM OUT** and **TAP OUT** digital video outputs.

Menu Lockout  
= OFF

The **Menu Lockout** parameter allows the AirCleaner control panel to automatically lock itself out from adjustment, after use of the rotary knobs has been stopped. If this parameter is turned OFF, then the automatic lockout feature is defeated.

Of course, the control panel can be locked at any time; simply **PUSH BOTH** knobs at the same time.

This parameter has the following adjustable range:

- = OFF “Disabled” value. This setting defeats the automatic menu lockout feature.
- = 10 Seconds Minimum Lockout value. The menu locks itself out after ten seconds of control panel inactivity.
- = 60 Seconds Maximum value. The menu locks itself out after one minute of control panel inactivity.

Whenever the AirCleaner control panel is locked out, it's a simple matter to unlock the menu control again:



1. TURN or PUSH either rotary knob; this presents the following on the LCD:

```
To Unlock
< Push Both >
```

2. PUSH BOTH rotary knobs at the same time. The control panel is now unlocked.
3. The Main Menu is now active in the LCD:

```
Screeners
= One
```

Turning the SELECT knob will now navigate within the Main Menu.

```
Save Changes?
< EXIT OK >
```

This parameter, when executed, will save any and all changes made to the values of all the parameters found in the Options Menu.

- EXIT PUSH the SELECT knob ( < EXIT ) to cancel any changes that have been made in the Options Menu. The LCD returns to the Main Menu.
- OK PUSH the SET ( OK > ) knob to SAVE all changes that have been made in the Options Menu. The LCD returns to the Main Menu.

If neither operation is desired (EXIT or OK) and the Options Menu needs to remain active, simply TURN the SELECT knob counter-clockwise to select another parameter within the Options Menu.

### WARNING DO NOT SAVE PARAMETERS WHILE LIVE "ON-AIR"

*Changes made to most parameter values in the Options Menu can severely disrupt the audio/video OUTPUTS from AirCleaner when those changes are saved; NEVER change any of the Options Menu parameters while using AirCleaner live on the air!*

#### 4. Operations

Control Panel Menu Item Descriptions

**Abekas®**







## Menu Flow Charts

The following charts depict the entire menu structure of AirCleaner and may be helpful as a quick reference or to help understand the menu navigation. The SELECT knob on the AirCleaner chassis is used to navigate between the menu screens.

Values for each parameter in the LCD screens (shown on the second line) are the “default” values for each parameter. Where shown, values below the menu screens are alternate settings for the parameter (settings are changed with the SET knob).

### Main Menu

(with ONE Screener)

Screeners  
= ONE  
= TWO

Total PGM Delay  
= 10:00

PGM Audio Offset  
= 0:00.0

Video Reaction 1  
= 1:15

Audio Reaction 1  
= 1:15

On Video Trigger  
= Defocus

= Luma Matte  
= Video AUX IN

Appears only when:  
On Video Trigger = Defocus

Defocus Level  
= 50

Appears only when:  
On Video Trigger = Defocus

Defocus Ramp  
= 0:15

Appears only when:  
On Video Trigger = Luma Matte

Luma Matte Level  
= 50

On Audio Trigger  
= Audio AUX IN

= Mute

Analog Audio OUT  
= PGM OUT 1/2

= PGM OUT 3/4

= PGM OUT 5/6

= PGM OUT 7/8

Analog Audio Vol  
= 100

Menu Lockout Now  
Select >

Selects AirCleaner Lockout

User Memory Menu  
Select >

Selects User Memory Menu

Options Menu  
Select >

Selects Options Menu

(with TWO Screeners)

Screeners  
= TWO  
= ONE

Total PGM Delay  
= 10:00

PGM Audio Offset  
= 0:00.0

Screener 2 Delay  
= 5:00

Video Reaction 1  
= 1:15

Audio Reaction 1  
= 1:15

Video Reaction 2  
= 1:15

Audio Reaction 2  
= 1:15

On Video Trigger  
= Defocus

= Luma Matte  
= Video AUX IN

Appears only when:  
On Video Trigger = Defocus

Defocus Level  
= 50

Appears only when:  
On Video Trigger = Defocus

Defocus Ramp  
= 1:00

Appears only when:  
On Video Trigger = Luma Matte

Luma Matte Level  
= 50

On Audio Trigger  
= Audio AUX IN

= Mute

Analog Audio OUT  
= PGM OUT 1/2

= PGM OUT 3/4

= PGM OUT 5/6

= PGM OUT 7/8

Analog Audio Vol  
= 100

Menu Lockout Now  
Select >

Selects AirCleaner Lockout

User Memory Menu  
Select >

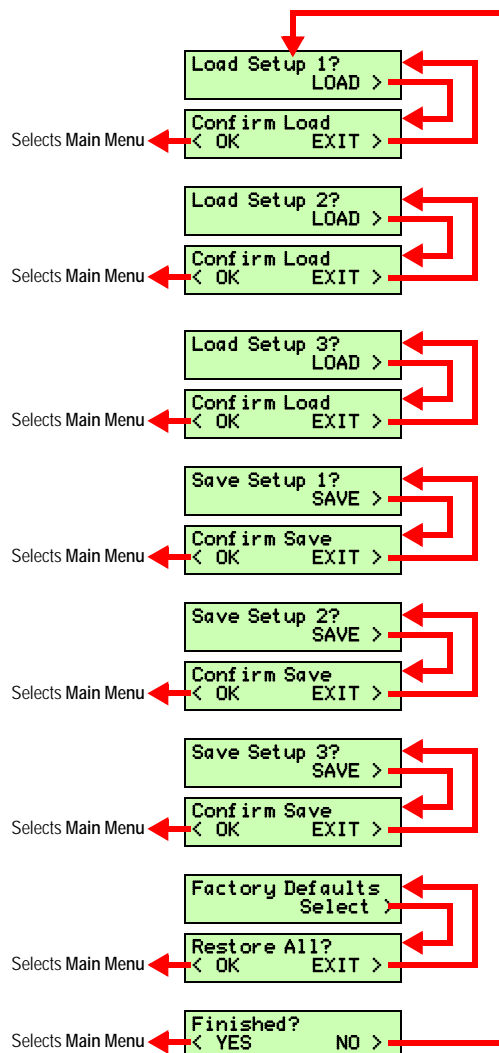
Selects User Memory Menu

Options Menu  
Select >

Selects Options Menu



### User Memory Menu



### Model & Software Version

Press the “SELECT”  
and “SET” buttons  
at the same time:

Model-1 / 2GB  
V1.45W

### Options Menu

Video Format  
= SD 525/59.94i

= SD 625/50.00i  
= 720/23.98p  
= 720/24.00p  
= 720/25.00p  
= 720/29.97p  
= 720/30.00p  
= 720/50.00p  
= 720/59.94p  
= 720/60.00p  
= 1080/23.98p  
= 1080/24.00p  
= 1080/25.00p  
= 1080/29.97p  
= 1080/30.00p  
= 1080/23.98psF  
= 1080/24.00psF  
= 1080/50.00i  
= 1080/59.94i  
= 1080/60.00i

Genlock  
= Bi-Lvl REF IN  
= Free Run  
= PGM Video IN  
= AUX Video IN  
= Tri-Level REF IN

H OUT Timing  
= 0 Pixels

V OUT Timing  
= 0 Lines

Pix Vert. Shift  
= 0

PGM IN Audio  
= SDI Embedded  
= AES

AUX IN Audio  
= SDI Embedded  
= AES

Embed. Audio OUT  
= ON  
= OFF

Menu Lockout  
= OFF  
= 10 Seconds  
(up to)  
= 60 Seconds

Selects Main Menu ← Save Changes? < EXIT OK > → Selects Main Menu

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