AvoidanceMonitor II

Users Manual

Version 4.14

S-723-003

21 Aug, 2015

Applies to:
Software Builds 14299-08, 15149-08 & 15204-15

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DISCLAIMER

The images, pictures, illustrations and photos in this manual are for illustration purposes only and do not necessarily represent the exact product.

CHAPTER 1
INTRODUCTION,
AVOIDANCEMONITOR II DESCRIPTION,
SOFTWARE & HARDWARE INSTALLATION

1.1 Introduction

Congratulations on your purchase of an ***AvoidanceMonitor II*** system and thank you for choosing ***Kinder Scientific*** for your behavioral testing needs.

Figure 1-1. AS1000 AvoidanceMonitor Station

NOTE

If you have purchased the Avoidance/SmartFrame/AGate Shock Option, the software installation instructions in this chapter and the software are the same for both systems. However, the hardware description and interconnect diagram in this chapter do not apply to the Avoidance/SmartFrame/AGate Shock Option. Refer to the Option documentation.

1.2 AvoidanceMonitor II Description

AvoidanceMonitor II has been designed to put data in your hands as quickly as possible. Default settings, Templates, file storage, and user definable output files have all been designed with flexibility and keystroke reduction in mind. Detailed explanations for these features are provided later, but first let's look at the basic steps of running the system.

Basic Steps:

1. Fill in session information screen.
2. Run the data collection session.
3. Reduce the collected data for export.

Once you have learned how to set up the system, it's that simple.

The manual is divided into two chapters as follows:

Chapter 1 – Introduction, ***AvoidanceMonitor II*** Description, and Software & Hardware Installation.
Chapter 2 – Getting Started.

AvoidanceMonitor II records animal responses with a dedicated microprocessor. The collected data is then transmitted via serial communication to the host PC.

1.3 Software Installation

NOTE

You *must* have administrator privileges to install the software.

1.3.1 System Requirements

- Microsoft® Windows™ XP Pro, or Microsoft® Windows™ 7 Pro.
- Dual Core processor minimum
- 8 GB RAM.
- 100GB Hard drive.
- At least one available serial COMM port on the PC.
- 19inch Monitor with 1280x1024 resolution.

NOTE

- Serial to USB adapters are not supported.

- System must have screen savers and Anti-Virus programs disabled during data collection.

- Auto updates and other software applications must not be run during data collection.

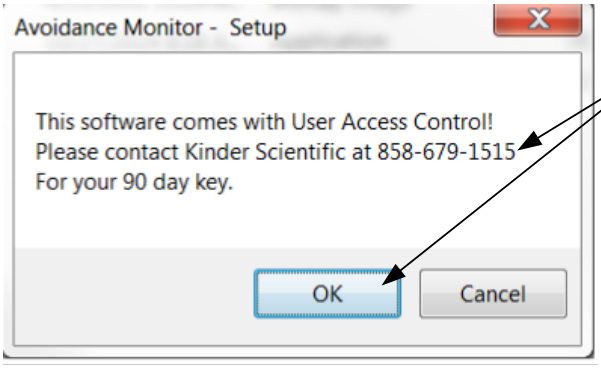
- System power saving settings must be set to ensure there is no interruption of hard drive during data collection.

1.3.2 Installation Preparation

- Close all programs and turn off virus protection software to prevent installation conflicts.
- If you are upgrading from an earlier version of AvoidanceMonitor, you must uninstall the earlier version using the **Add/Remove Program** feature in the **Control Panel** for Windows XP Pro or **Programs and Features** in the **Control Panel** for Windows 7 Pro. Existing session files, configuration files, data files, etc., will not be affected by uninstall.

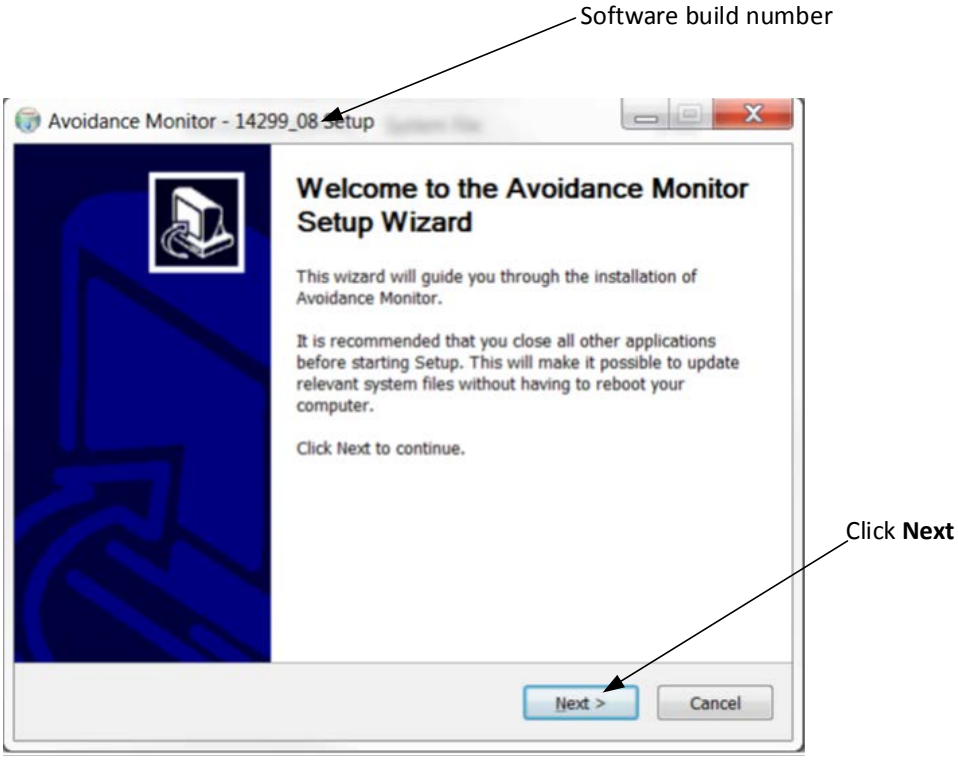
1.3.3 Installation

1. Insert the provided AvoidanceMonitor II installation CD into the CD-ROM drive. Access the CD-ROM, then click on **AVInstall.exe**. The following screen will appear.

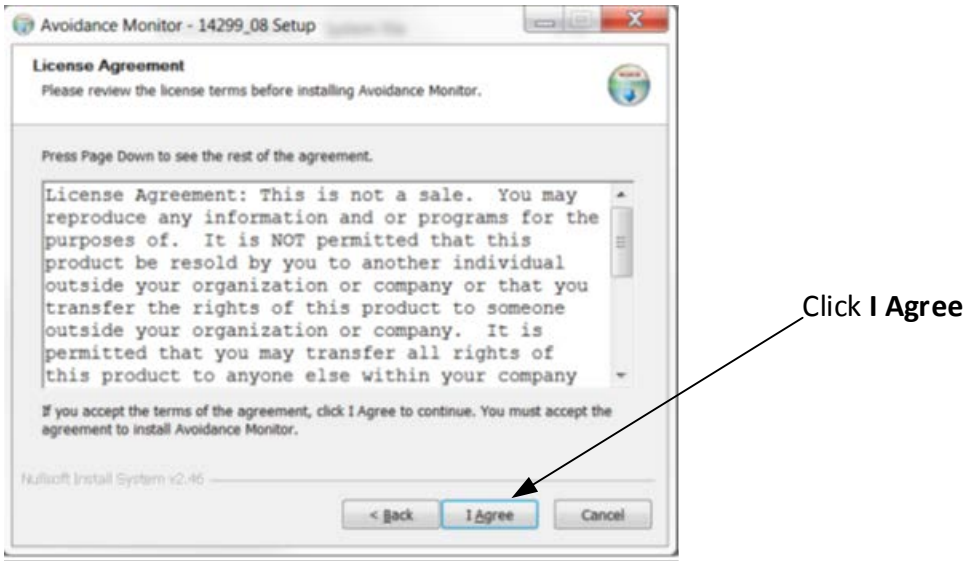


You will need to call or email Kinder Scientific to obtain a license key. However, you need to install the software first so write down the phone number, click **OK** and continue with the installation instructions. The email address is: **service@kinderscientific.com**

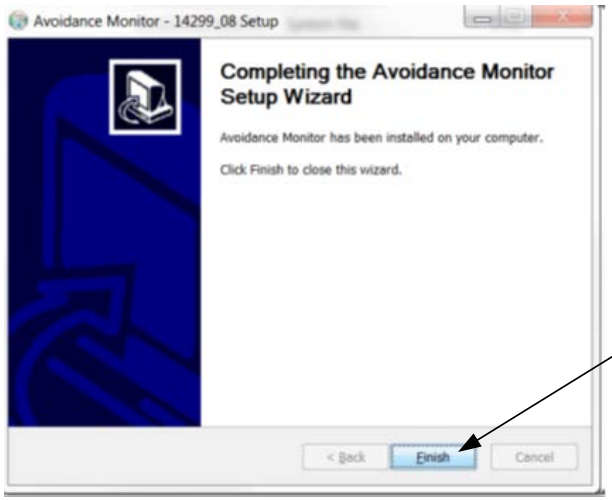
2. The installation uses an AUTORUN feature and will open the following Screen:



The following screen will appear:



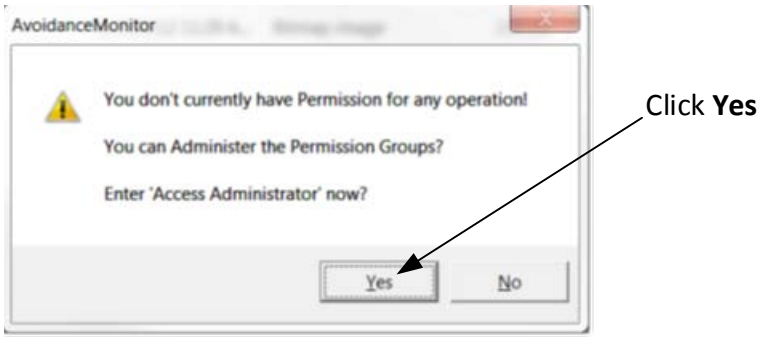
Read through the License Agreement and click on **I Agree.** The following screen will appear:



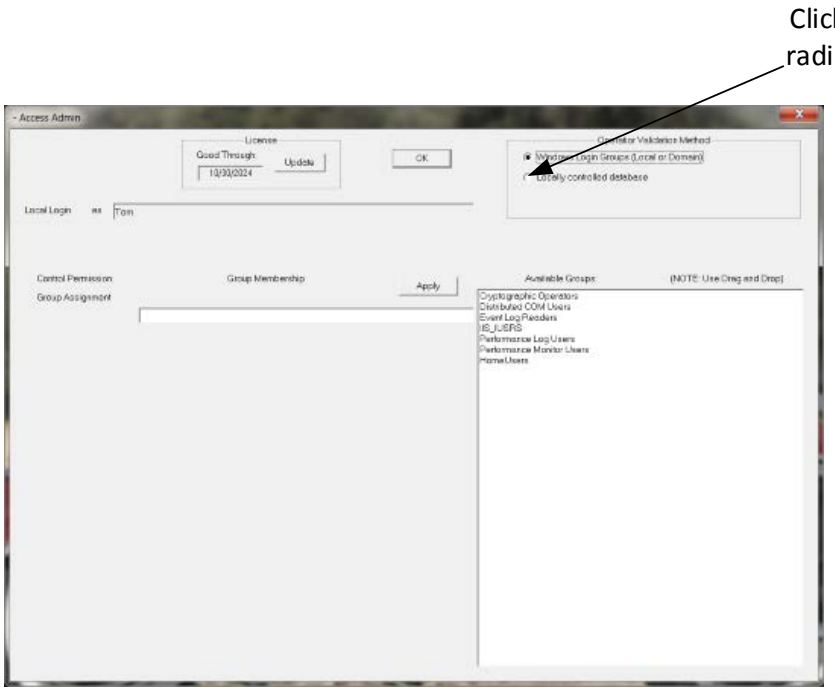
The installation is complete. Click **Finish** and the installation screens will close.

3. When you click on the AvoidanceMonitor icon the following screen will appear. Call or email Kinder Scientific to obtain the license key.

4. The following screen will appear:

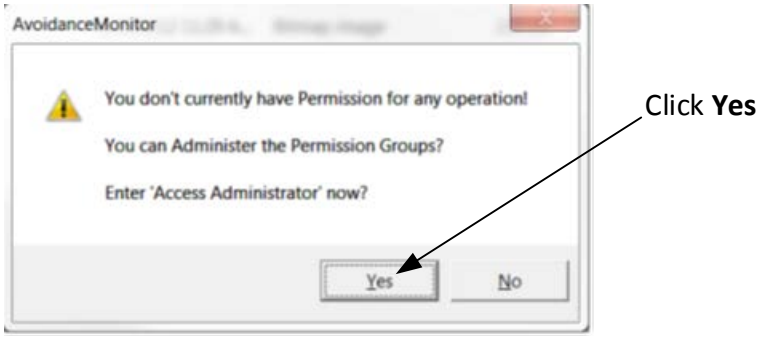


5. The following screen will appear:

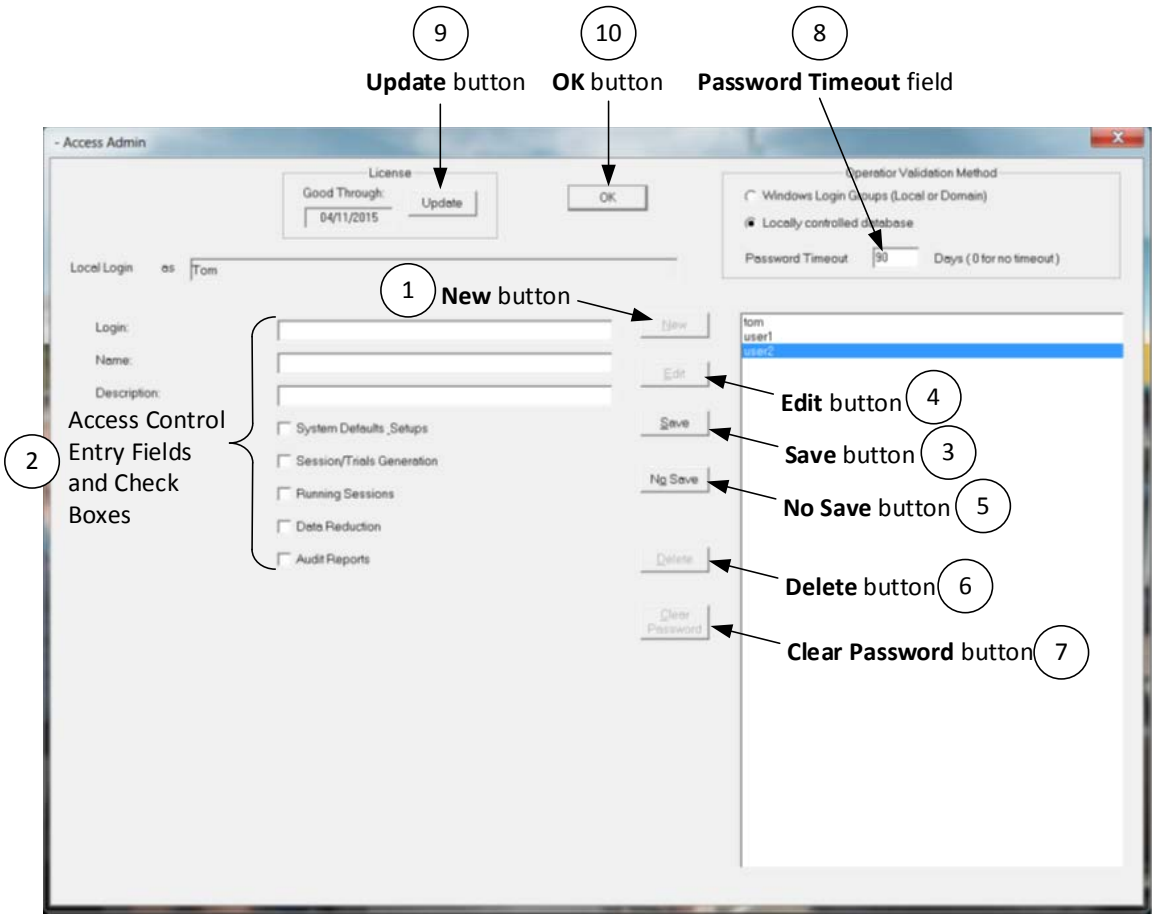


6. After you clicked the radio button described in the previous illustration, the following screen will appear:

7. The following screen will appear:



8. The **Access Admin** screen will appear. This screen is where users' login information is created and maintained. Refer to the following illustration and the instructions that follow on the next page to assign access control and permissions.



(1) Start by clicking on the **New** button. The Access Control entry fields and the permissions check boxes will be activated.

(2) Enter a login name in the **Login:** entry field. The next two fields, **Name:** and **Description:** are optional. However, an entry must be made in the **Login:** entry field to continue.

The check boxes are used to assign permissions for specific tasks to each user. This allows you to customize access for each user. At least one box must be checked to continue.

(3) Once the field entries are made and the boxes are checked, click the **Save** button. The user login name will move to the large field on the right of the screen. Additional entries can be made by repeating the previous three steps as many times as needed.

(4) The **Edit** button is used to modify a user's permissions. This is accomplished by clicking on the user's name and then clicking on the **Edit** button. The user's information will appear in the Access Control entry fields and the check boxes.

(5) The **No Save** button is used to remove information from the Access Control entry fields and check boxes *before* you click **Save**.

(6) The **Delete** button is used to delete users. Click on the user's login name then click on **Delete**.

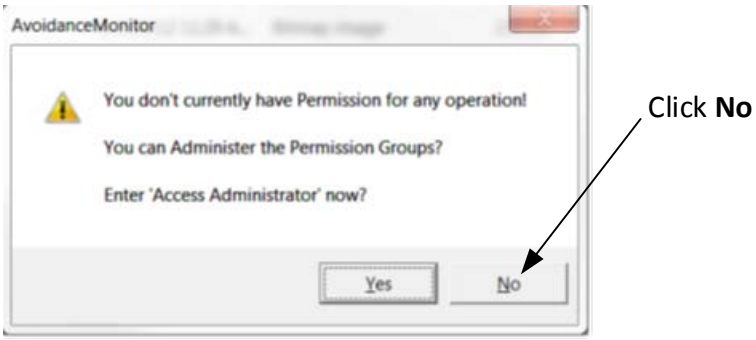
(7) The **Clear Password** button is used to clear a user's password. Click on the user's login name then click on **Clear Password**.

(8) The **Password Timeout** field is used to define how long a user's password is good. Enter a value in this field before you click on the **Save** button. The default value is 90 days. If a value of zero is entered the password will not timeout.

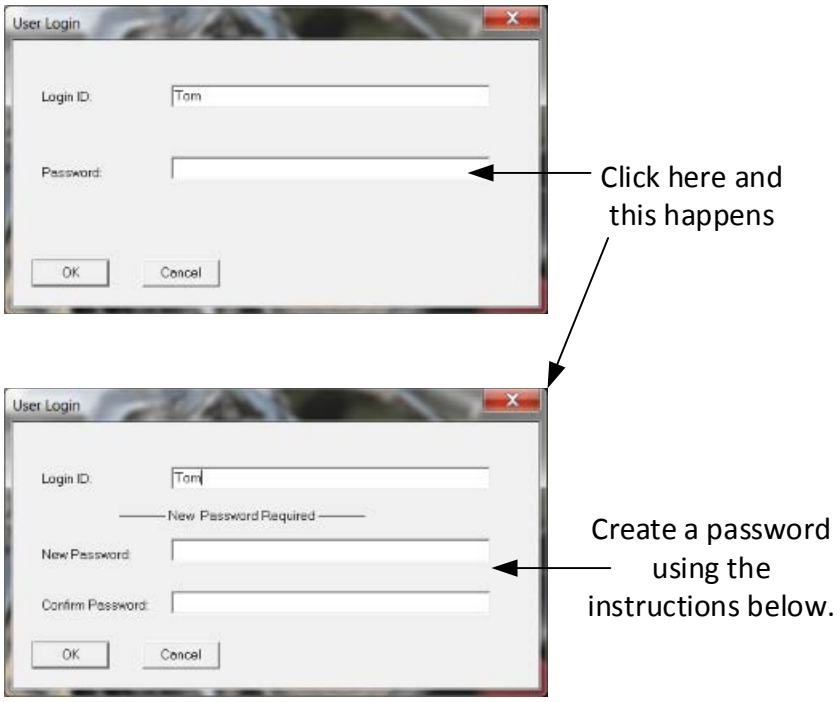
(9) The **Update** button is used to update your license key as previously described in this section.

(10) Click on the **OK** button when all entries are made to your satisfaction. This screen can be accessed at any time by opening up StartleMonitor and selecting **Access Admin** from the **File** menu.

9. After you have followed the instructions in the previous illustration, the following screen will appear:



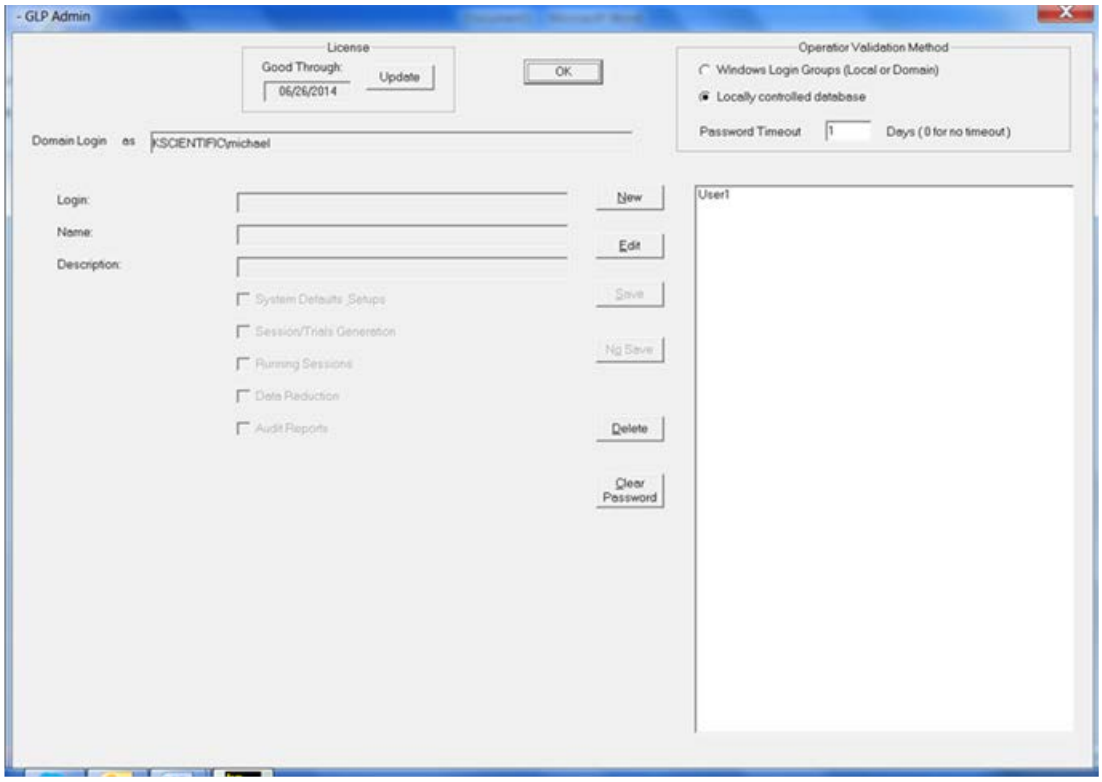
10. Once you have clicked **No**, the AvoidanceMonitor software will close. Clock the AvoidanceMonitor icon to re-open the AvoidanceMonitor software and follow the instructions in the next illustration:



1.	Password structure:
a.	Must contain at least one special character. For example: !, @, #, $, %, ^, &,*
b.	Must contain both letters and numbers.
c.	Must be at least 8 characters.
d.	Must contain at least 1 capital letter.

1.3.4 Resetting a User Password After Expiration

1. Login as Admin. You do not need a password if you are a Windows Administrator. Open up AvoidanceMonitor, access the **File** menu and select **Access Admin**. The following screen will appear:



2. Highlight the user you want to reset and click on **Clear Password**. The user will be asked to set a new password at the next usage.

1.4 Hardware Assembly and Installation

The following paragraphs describe how to assemble and setup the hardware, and how to connect to the host pc.

1.5 Unpacking the Hardware

Use care when removing the hardware from its shipping container to prevent damage to any protruding connectors, controls, or indicators. Although the components are thoroughly inspected mechanically and electrically before packing for shipment, they must be inspected upon receipt for damage in transit.

1. Make sure each item on the packing list is included with the shipment.
2. Inspect all items for dents, chips and heavy scratches (gouges). Check for broken or bent connectors, controls, and indicators. Photographs of damage may be helpful in substantiating subsequent claims. Kinder Scientific insures all shipments for damage.

1.6 Reshipment Procedure

If a component is to be reshipped after receipt, use of the original shipping container and packing materials is recommended.

1.7 Returned Equipment With Warranty or Damage Claims

If a component is damaged in transit you MUST contact the carrier immediately. DO NOT discard the shipping containers as they will be evaluated by the carrier. Your shipment was insured by Kinder Scientific and should be covered for any damage it received in transit.

If the product does not operate as specified when received, notify the carrier and Kinder Scientific customer service immediately by calling 1-858-679-1515. Make sure you get a Service Work Order (SWO) number prior to returning any equipment. Make sure you include the SWO number, your company's name, address, person to contact, and telephone number on the feedback form. A short description of the damage or problem will also be helpful.

1.8 Equipment Description

The features of the ***AvoidanceMonitor*** systems are as follows:

A separate ***Control Chassis*** providing the interface between the host computer and the ***AvoidanceMonitor*** station. Up to eight stations can be connected to a single ***Control Chassis***.

An ***AvoidanceMonitor*** Station with a ***Service Pack*** located on the left side of the station. The Service Pack contains most of the station controls and electronics.

Separate power supplies for the ***Control Chassis*** and the ***AvoidanceMonitor*** Station.

1.8.1 BSC100 Control Chassis

As with all Kinder Scientific systems, the Control Chassis has its own separate embedded microprocessor controller. This architecture provides a stable partition between the data collection effort and the host pc. This greatly enhances the process of real-time data collection within the Windows platform. Communication between the BSC100 Control Chassis' embedded controller and the pc's Windows platform is via an RS232 serial port.

Each **BSC100** Control Chassis is capable of monitoring up to eight stations using a single pc. An example of the ***AvoidanceMonitor*** Control Chassis front panel is shown in Figure 1-2.

Figure 1-2. BSC100 Control Chassis

1.8.2 AS1000 AvoidanceMonitor II Station

The AS1000 ***AvoidanceMonitor*** II Station is completely self-contained. Figures 1-3, 1-4 and 1-5 and Tables 1-1 and 1-2 provide brief descriptions of the components and features of the ***AvoidanceMonitor*** System.

Figure 1-3. AS1000 AvoidanceMonitor Station Description

Figure 1-4. AS1000 Photo Beam Indicators

Table 1-1. AS1000 Features and Components

	NAME	TYPE	FUNCTION
1.	Stainless Animal Arena	Easy to Clean Stainless Steel enclosure	Left/ Right Test subject enclosure.
2.	Removable Grid Floor and Refuse Tray	Removable Stainless Steel Insert	When active, used to shock test subject. Unconditioned Stimulus
3.	Cue Lights		Conditioned Stimulus
4.	House Lights	30-LED array, variable intensity (white)	Conditioned Stimulus
5.	Pure Tone Cues	Speakers	Conditioned Stimulus
6.	Front Panel Controls	Controller	Contains the controls and most of the electronics for the system.
7.	Optional Video Camera Mounts		Used as a visual aid to monitor test subject's movements/reactions.
	Gate (not pictured, located in the middle of the arena)	Electro-Mechanical, software controlled	Opens and closes to allow/inhibit movement of the test subject.
	Photo Beam Indicators (Figure 1-4)	LED Indicators (green)	Lights when corresponding photo beam is broken by test subject.

1.8.2.1 AS1000 Front-Panel Controls and Indicators

The AS1000 Front Panel contains the controls and most of the electronics for the ***AvoidanceMonitor*** System. Figure 1-5 and Table 1-2 describes the front-panel controls and indicators.

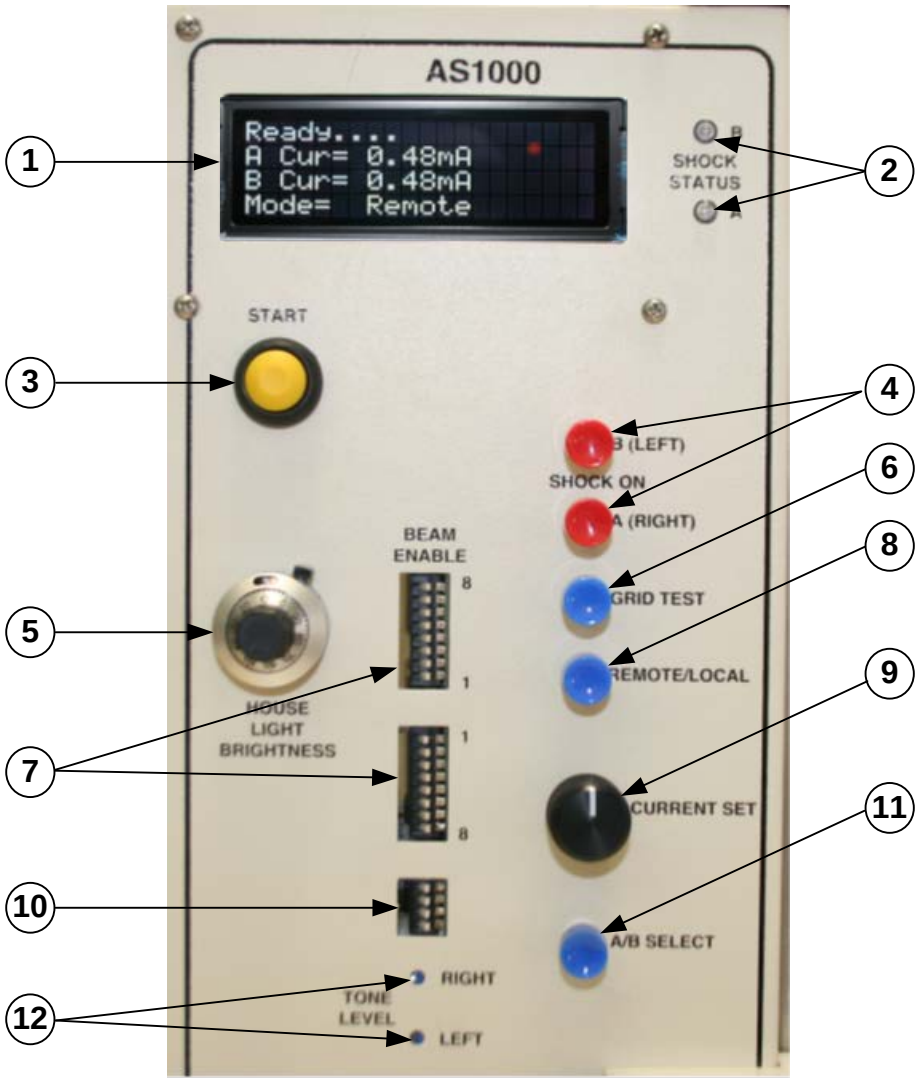


Figure 1-5. AS1000 Front-Panel Controls and Indicators

Table 1-2. AS1000 Front-Panel Controls & Indicators

	NAME	TYPE	FUNCTION
1.	Shock Current Display	Display, LCD	Displays status, grid current in mA, and Mode.
2.	**SHOCK STATUS, A B**	LED Indicators	Displays active grid
3.	**START** Button	Pushbutton, Momentary	Starts a session.
4.	Manual **SHOCK ON B (LEFT) A (RIGHT)** Initiates	Pushbutton, Momentary Toggle Command. Push to Start, Push to Stop	Shock: Manually activate left or right shock grid
5.	**HOUSE LIGHT BRIGHTNESS**	Potentiometer, 10-turn Vernier Dial	Simultaneously adjusts house lamp intensity in both arenas.
6.	**GRID TEST**	Pushbutton, Momentary	Initiates the grid leak test
7.	**BEAM ENABLE**	Two 8 Position Single throw Digi-Switches	Enables/Disables beams for entry trigger point
8.	**REMOTE/LOCAL**	Pushbutton, Momentary	Toggles Shocker between Local and Remote (used for Grid Leak test)
9.	**CURRENT SET**	Potentiometer	Used to adjust current when the **SHOCK ON** switch is held in the Set position.
10.	Option Switch	4 Position Single Throw Digi-Switch	For future use
11.	**A/B SELECT**	Pushbutton, Momentary	Selects A or B side for setting the shock value. Each side is set separately
12.	**TONE LEVEL, RIGHT LEFT**	10 Turn Potentiometers	Left/Right Sound level adjust

Table 1-3. *AvoidanceMonitor* Specifications

Electrical	
Voltage:	100-240 Vac
Frequency:	47-63 Hz
PhotoBeams:	Infrared, 8 per side
Physical	
Depth (Overall):	18" (45.72 cm)
Depth (Each Side):	8.75” (22.23 cm)
Width (Overall):	27.25" (69.22 cm)
Width (Each Arena):	9.25” (23.5 cm)
Height:	10" (25.4 cm)
Weight	50.5 lbs
Maximum number of stations:	16
Computer Interface:	Single RS232 serial port regardless of the number of stations.

1.9 Hardware Assembly & Interconnection

The ***AvoidanceMonitor*** system ships complete with all hardware required for assembly. Each ***AvoidanceMonitor*** system will have the following hardware:

The AS1000 ***AvoidanceMonitor*** station
1 AS1000 power supply with a power cord
1 BSC100 Control Chassis
1 Control Chassis power supply with a power cord
1 I/O cable
1 serial cable

1.9.1 Assembly

1. The ***AvoidanceMonitor*** station is shipped completely assembled and only requires interconnection and configuration.
2. Make sure the surface where the ***AvoidanceMonitor*** station is placed is clean and free of any debris.

1.9.2 Interconnection

NOTE

Refer to Figure 1-6 while performing the system interconnection.

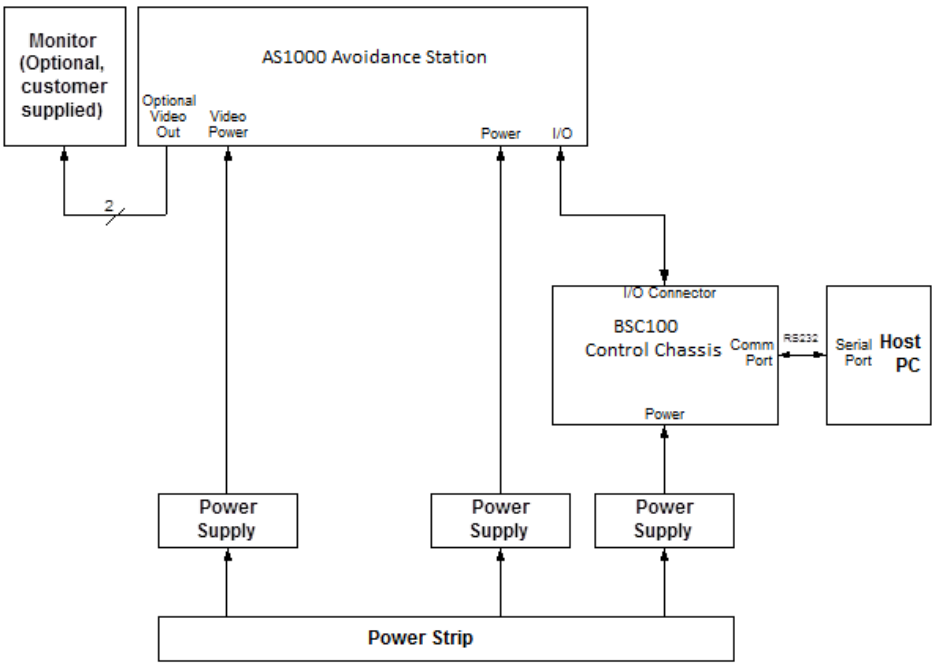


Figure 1-6. AS1000 Interconnect Diagram

1. First, make sure all power is turned off before making any connections.
2. Connect the serial cable from the host pc to the serial connector located on the BSC100 Control Chassis labeled **COMM PORT.**
3. Connect the I/O cable from the BSC100 Control Chassis to the connector located on the rear of the AS1000 Avoidance Station, starting with Control Chassis connector number 1.

4. Connect any subsequent I/O cables to their respective Stations.

5. Once all of the cable connections have been made connect the power supply to the BSC100 Control Chassis and to the power source.

6. Connect the power supply to the connector located on the rear of the AS1000 and to the power source. If additional AS1000 Stations are installed, each Station will have its own power supply. Make sure these power supplies are connected and plugged into the power source as well.

7. If the video option is installed, connect the video power supply to the **Video Power** connection located on the back of the AS1000 Station. Connect the two **Video Out** cables to the monitor. The **Video Out** connections are located next to the **Video Power** connection.

NOTE

The monitor should be capable of split-screen viewing with two **Video-In** connections.

8. Turn on the computer and all the power supplies (each power supply has its own on/off switch). Make sure the **POWER** indicator on the AS1000 is ON.

9. Once the computer is up and running, enable the ***AvoidanceMonitor*** software and then proceed to the next chapter.

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CHAPTER 2
GETTING STARTED

2.1 Introduction

The first thing you will see once the AvoidanceMonitor program is enabled is a screen similar to Figure 2-1.

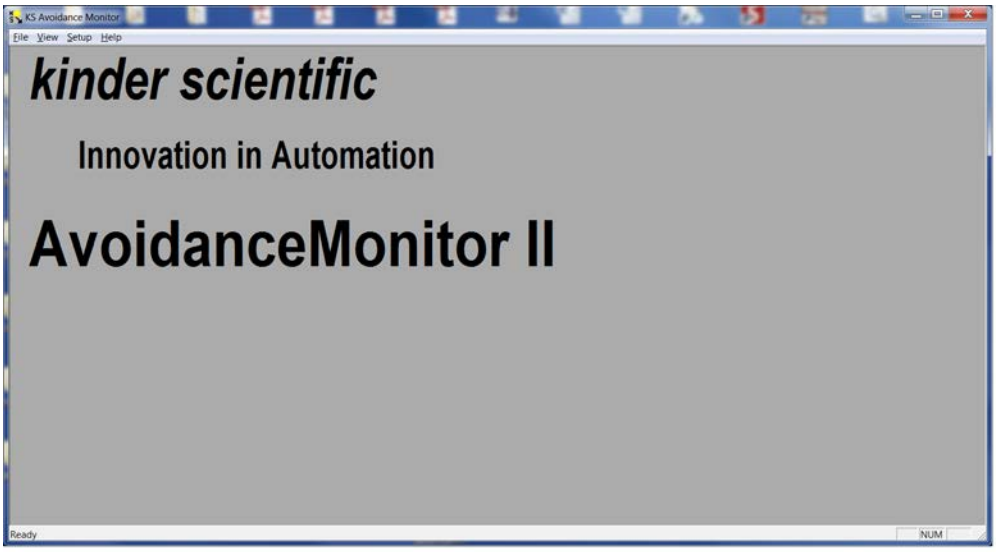


Figure 2-1. AvoidanceMonitor Opening Screen.

NOTE

If you have purchased the Avoidance/SmartFrame/AGate Shock Option, the software instructions in this chapter are the same for both systems. However, the Grid Leak Test instructions for the Shock Option are found in the DSCK Dual Programmable Shocker User's Manual.

2.1.1 Setting the Comm Port You must select a Comm port in order for the software to communicate with the hardware you just installed. Setting the Comm Port is accomplished using the **Setup** pull-down menu. Click on **Setup** then **Comm Port**. Select a Comm Port and Click **OK**. This is shown in Figure 2-2.

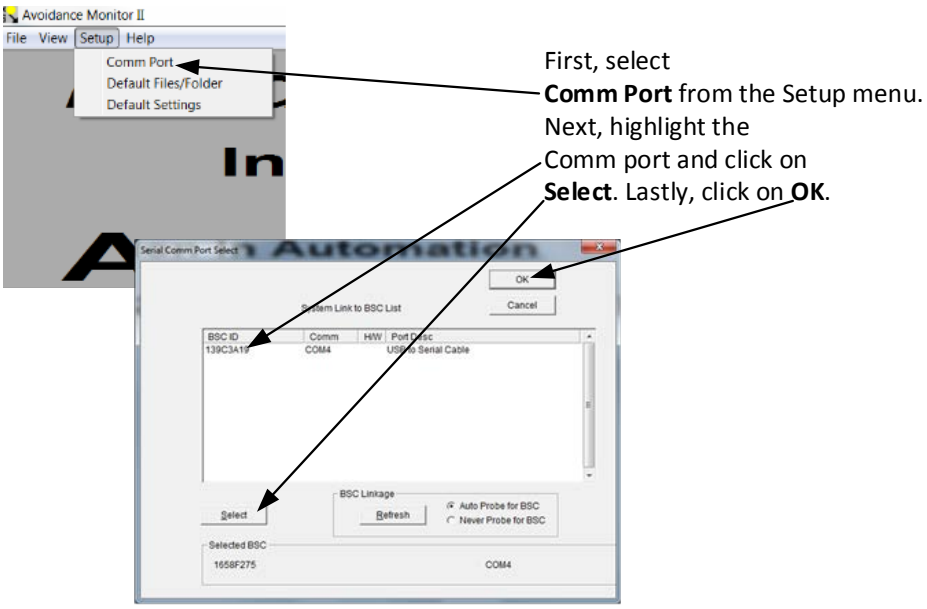


Figure 2-2. Selecting the Comm Port

2.1.2 Checking Communications Use the following procedure to make sure the software is communicating with the hardware.

1. Select the **View** menu, then click on **Diagnostic**. If there is a communications failure, a screen similar to Figure 2-3 will appear. If there is no failure, a screen similar to Figure 2-4 will appear.

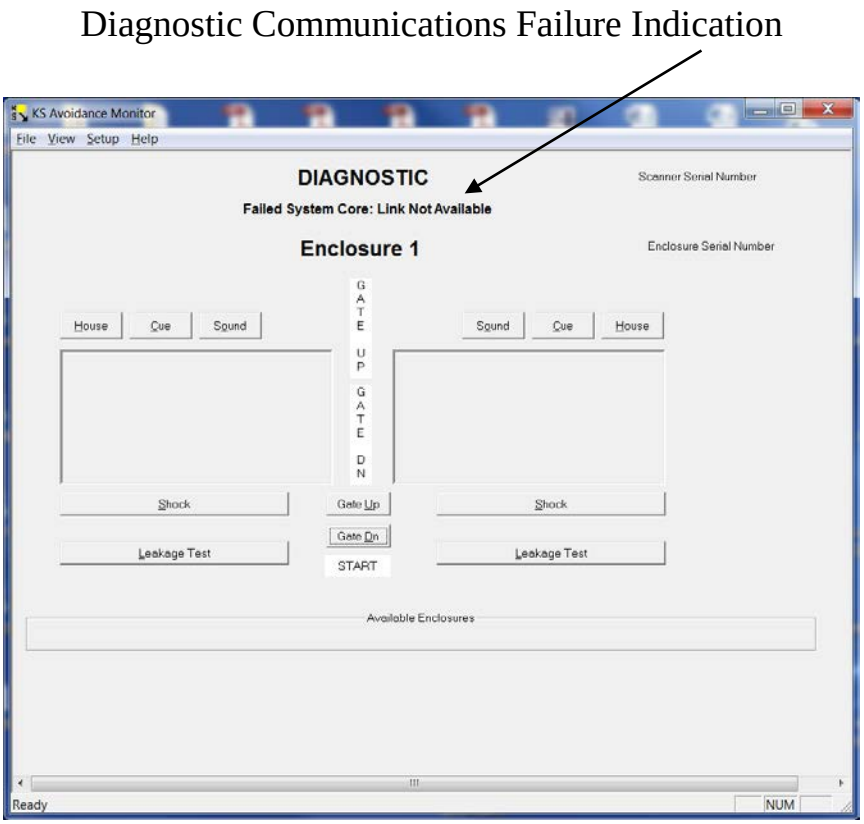


Figure 2-3. Diagnostic Communications Failure Screen

What this screen indicates is a failed attempt to communicate with the scanner. If you get this screen, check the following:

1. Make sure the RS232 cable that connects the PC to the BSC100 Chassis is properly connected.
2. Make sure the BSC100 Chassis power supply is connected and turned on.
3. Make sure the AS1000 power supply is connected and turned on.
4. If the power strip the power supplies are plugged into has an on/off switch, make sure it's turned on and there is power to the power strip.

5. Make sure a Comm Port is selected (Figure 2-2).

6. A visual indication that the problem is rectified will be a display similar to the one shown in Figure 2-4.

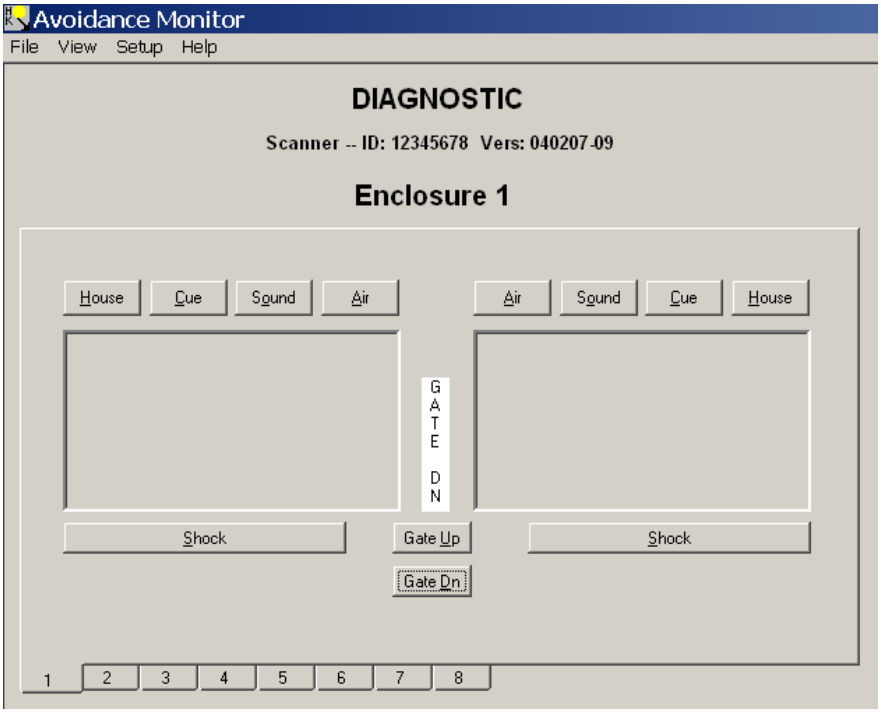


Figure 2-4. Diagnostic Screen Showing Normal Communication

2.1.3 Setting Default Files/Folders You can accept the installation default locations where the system stores the raw data files and the reduced files, or you can change them. To do this, click on **Setup** and then **Default Files/Folder** as shown in Figure 2-5.

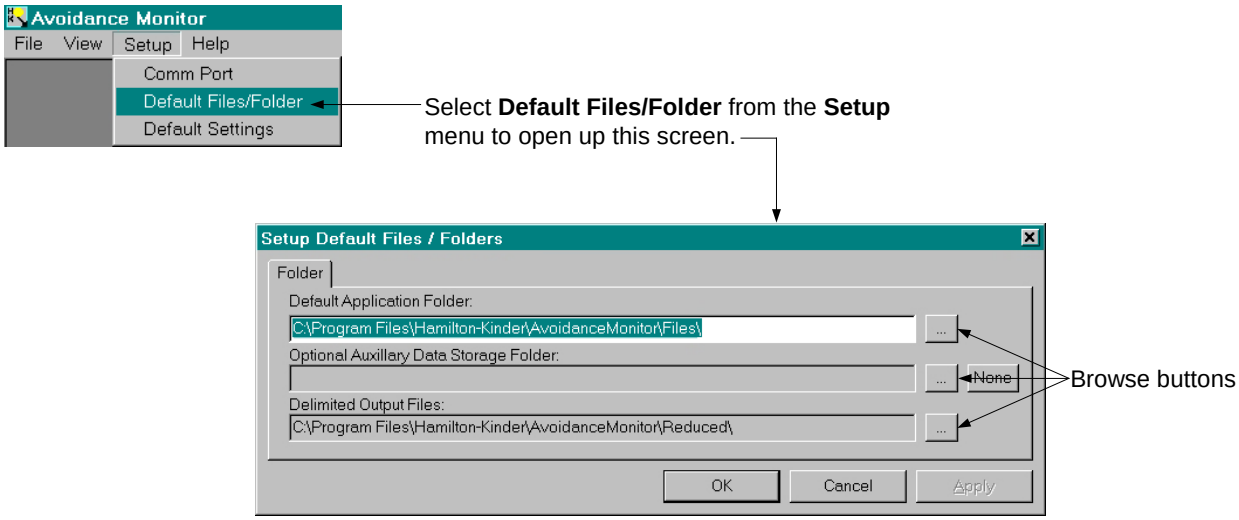


Figure 2-5. Default Files/Folders Screen

The **Default Application Folder** setting determines where the raw data files will be stored and where session files are saved.

The **Optional Auxiliary Data Storage Folder** is used as a redundancy storage site and may be set to any path, including any desired network drives.

The **Delimited Output Files** setting determines where the system will store all reduced files. It can be set to any valid path.

NOTE

These three default file/folderlocation selections *do not* include CD drives.

2.1.4 Setting the Default Settings The Default Settings screen is a keystroke reduction feature that allows you to create your own default session parameters. Most of the settings on this screen are duplicates of the settings that appear on the session screens. Selections made from this screen will be reflected on the appropriate session screens; i.e., you can pre-select and pre-fill specific parameters from this screen before starting a session. This is particularly helpful if you are repeatedly creating sessions with the same values. Select **Default Settings** from the **Setup** menu and the **Default Settings** screen will appear as shown in Figure 2-6.

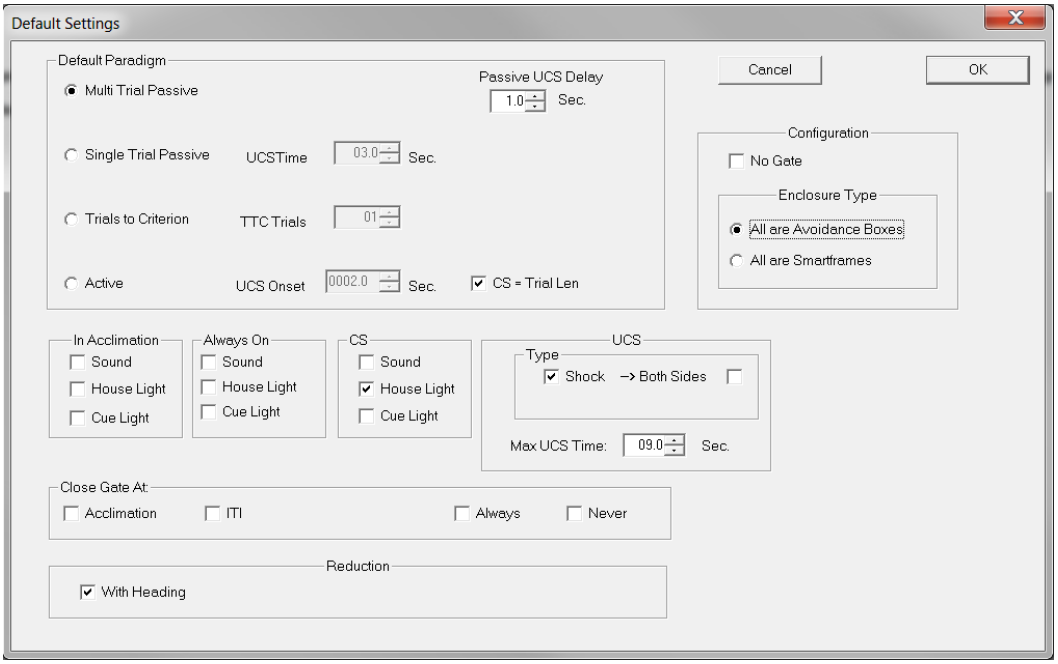


Figure 2-6. Default Settings Screen

2.1.4.1 Default Paradigm Group The **Default Paradigm** group is for selecting the default paradigm that will appear when **New** is selected from the **File** menu. In addition, parameters specific to one or more paradigms can be set in this group. Figure 2-7 shows the relationship between this group and the session screens, i.e., which controls apply to which paradigm.

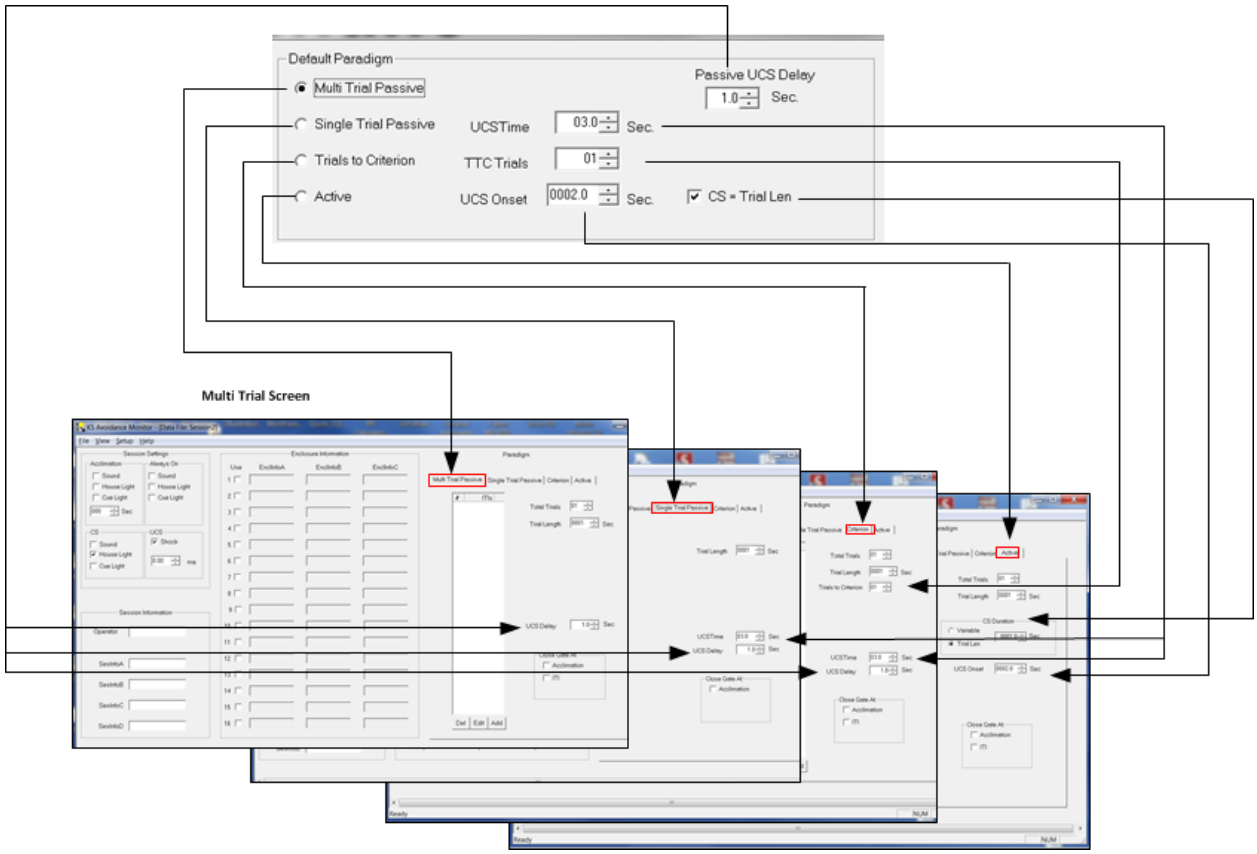


Figure 2-7. Default Paradigm Group

2.1.4.1.1 Multi Trial Passive Radio Button Used to select **Multi Trial Passive** as the default paradigm when **New** is selected from the **File** menu.

2.1.4.1.2 Single Trial Passive Radio Button Used to select **Single Trial Passive** as the default paradigm when **New** is selected from the **File** menu.

2.1.4.1.3 Trials to Criterion Radio Button Used to select **Criterion** as the default paradigm when **New** is selected from the **File** menu.

2.1.4.1.4 Active Radio Button Used to select **Active** as the default paradigm when **New** is selected from the **File** menu.

2.1.4.1.5 UCS Time Field This is a pre-fill parameter for the **Single Trial Passive** and **Criterion** paradigms. Used to determine the unconditioned stimulus time for a trial. Values are entered in one-tenth of a second increments (00.0 to 99.9 seconds).

2.1.4.1.6 TTC Trials Field (Trials to Criterion) This is a pre-fill parameter for the **Criterion** paradigm. Sets the criteria for the number of consecutive crossings that could determine the end of the session. Values are entered in one trial increments (01 to 99 trials).

2.1.4.1.7 CS-UCS Field This is a pre-fill parameter for the **Active** paradigm. Used to determine the delay between conditioned stimulus and unconditioned stimulus. Values are entered in one-tenth of a second increments (00.0 to 99.9 seconds).

2.1.4.1.8 Passive UCS Delay Field This is a pre-fill parameter for the **Multi Trial Passive, Single Trial Passive,** and **Criterion** paradigms. Used to determine the delay before the onset of the shock or air-puff stimuli. Values are entered in one-tenth of a second increments (0.0 to 9.9 seconds).

2.1.4.1.9 CS-Trial Length This pre-fill parameter for the **Active** paradigm detemines whether to end the trial when the subject crosses or allows the trial to run the full length as determined by the **Trial Length** setting.

2.1.4.2 Configuration Group The **Configuration** group is used when there is no gate installed in the Avoidance station. When the **No Gate** box is checked, the **Close Gate At:** parameters are disabled. This box should only be checked if the AvoidanceMonitor is operating without the gate installed. The **Enclosure Type** sub-group defines what types of enclosures are being used. If Avoidance stations are being used then the **All are Avoidance Boxes** radio button must be selected. If the Avoidance/SmartFrame/AGate/Shock Option is being used then the **All are Smartframes** radio button must be selected. Figure 2-8 is an example of the **Configuration** group.

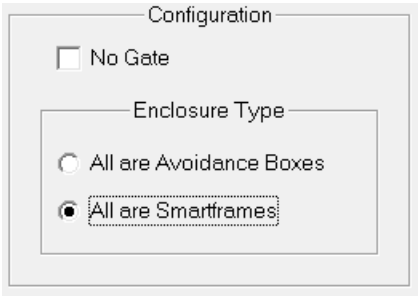


Figure 2-8. Configuration Group

NOTE

When using the Avoidance/SmartFrame/AGate/Shock Option , the **No Gate** box ***must not*** be checked and the **All are Smartframes** radio button ***must*** be selected.

2.1.4.3 CS (Conditioned Stimulus) Group The **CS** group is used for pre-selecting the conditioned stimulus features. Boxes checked here will also be checked on the session screen. Figure 2-9 is an example of the **CS** group.

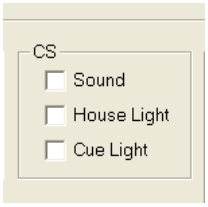


Figure 2-9. CS Group

2.1.4.4 UCS (Unconditioned Stimulus) Group The **UCS** group is used for pre-selecting the unconditioned stimulus features. Boxes checked here will also be checked on the session screen. Figure 2-10 is an example of the **UCS** group.

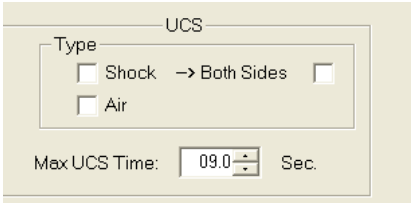


Figure 2-10. UCS Group

2.1.4.5 Close Gate At: Group The **Close Gate At:** group is used for pre-selecting the session gate-closure functions. Boxes checked here will also be checked on the session screen. Figure 2-11 is an example of the **Close Gate At:** group.

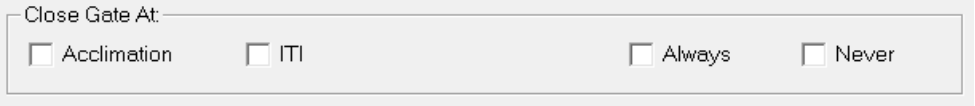


Figure 2-11. Close Gate At: Group

2.1.4.6 Reduction Group The **Reduction** group is used for selecting whether or not you want header information included in the reduced file readout. Using this feature along with a **.csv** file extension will make the output file recognizable to Excel. Figure 2-12 is an example of the **Reduction** group.

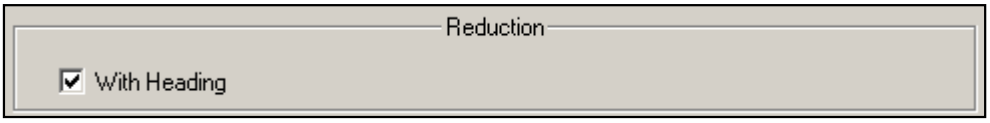


Figure 2-12. Reduction Group

Four default parameters that do not appear on any of the **Session File** screens are the **Both Sides** check box and the **Max UCS Time** field in the **UCS**

group, the **No Gate** check box in the **Configuration** group, and the **Always** check box in the **Close Gate At:** group.

The **Both Sides** check box is for enabling both shock grids. The feature is designed specifically for the **Active** paradigm. Occassionally the subject may stay half-way through the gate and foil the test.

The **Max UCS Time** parameter limits the amount of shock time a subject may receive during any single shock event, regardless of the **Session File** setting. For example, if you set this parameter to 5 seconds the maximum shock time an subject will receive during any individual-punished crossing will be 5 seconds. The parameter is *not* cumulative, i.e., each time the subject enters the correct side the shock time counter will reset. In other words, a subject may receive multiple shocks that will total more than this setting but it will not receive an inidividual shock experience that exceeds this setting.

When **Always** is checked in the **Close Gate At:** group, the gate will stay down (closed) regardless of any other parameter settings. This eliminates the "shuttle box" function of the system and allows you to use either arena as a conditioning enclosure.

NOTE

Unless you want the gate permanently closed, *make sure* the **Always** box is *not* checked.

2.2 Using Diagnostics

To use the diagnostics click on **View** and then **Diagnostic**. A screen similar to Figure 2-13 will appear.

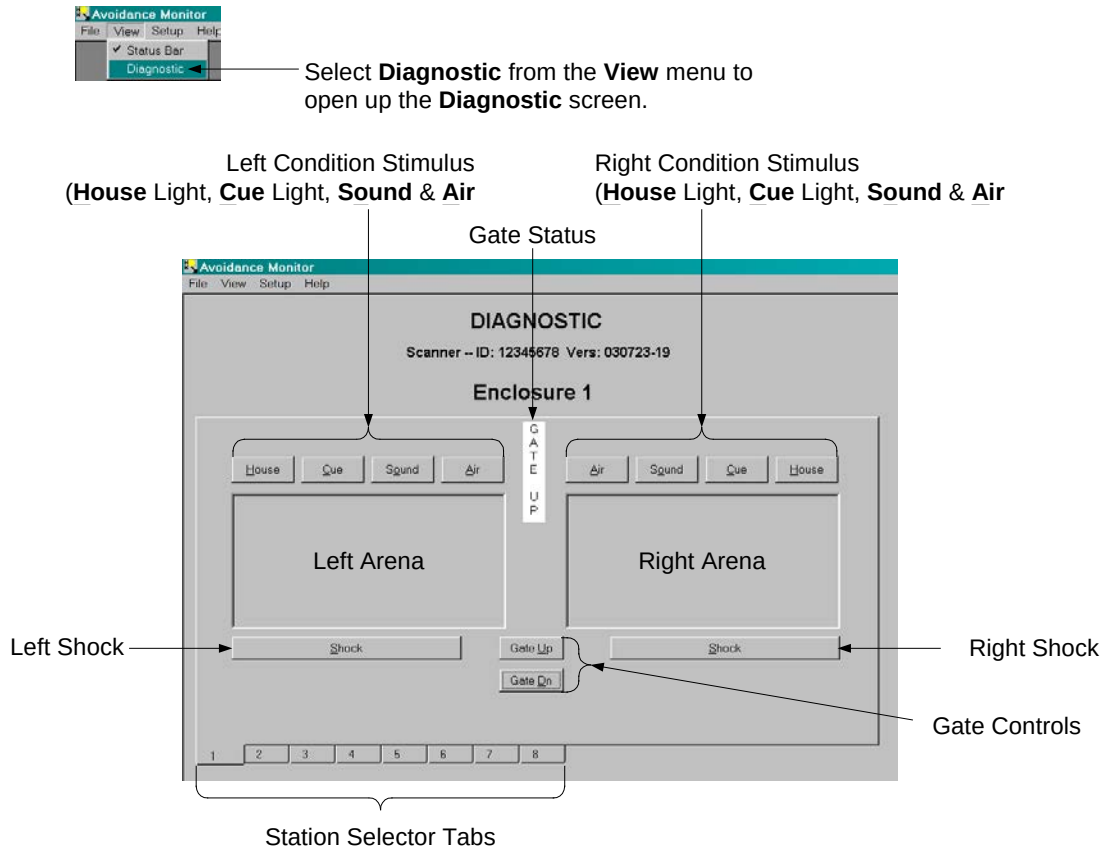


Figure 2-13. Diagnostic Screen Description

To use the diagnostic first select the desired station using the Station Selector Tab and then click on an individual stimulus to activate/deactivate. Each click will toggle the status of the stimulus, i.e., turn it on or off and in the case of the gate move it up or down. You can confirm operation of each feature by opening the top cover of the station and then by observing whether or not the selected action took place. In addition, when you click on a function, the function will change color and remain in that condition until you click on it again. Figure 2-14 is an example with all the functions turned on.

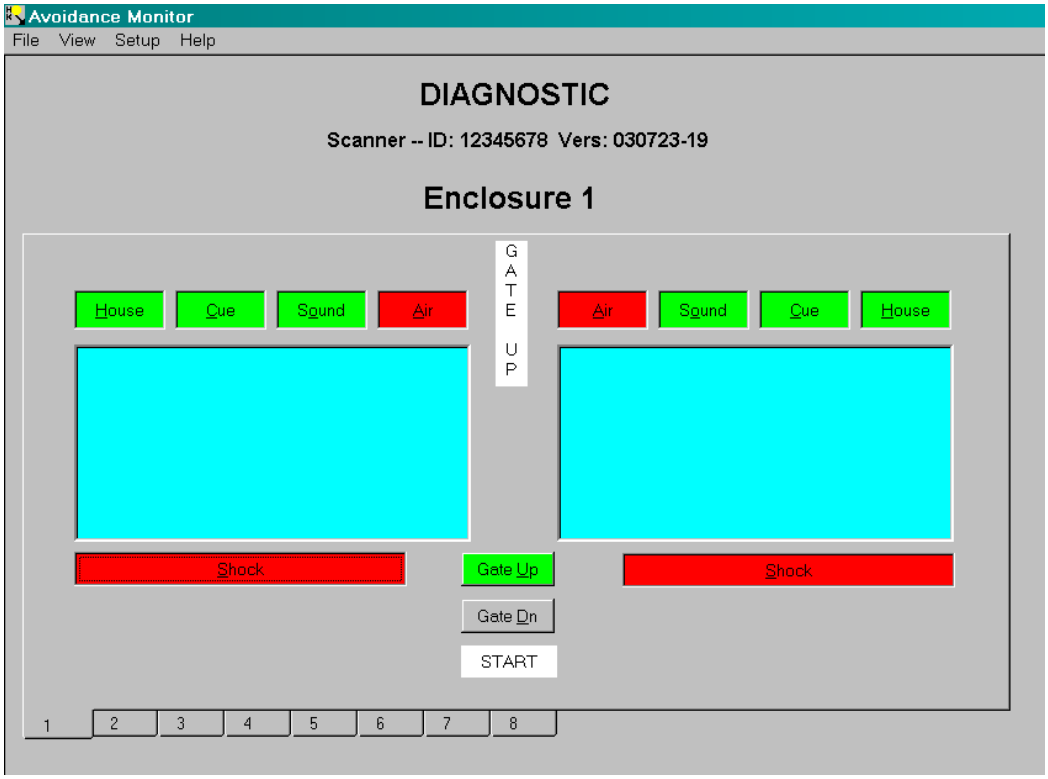


Figure 2-14. Diagnostic Screen With All Functions Active

2.3 Understanding Session Data Files

The end goal is to collect activity data on each subject and place those data into Session Data files. Session Data files contain user information such as the operator's name, subject number, sex, including a variety of user-entered information.

A session cannot be run until a unique Session Data file is created for that session. Saved Session files, user information, and the collected data are used when creating a Session Data file.

A unique Session Data file is created each time a session is run and all data are stored in a proprietary format where the data is not readable by the user with non-Kinder Scientific software (i.e., raw data).

It is this Session Data file (raw data plus the user-entered parameter settings) that is used when performing a *file reduction*. The results of a file reduction are user-readable, analyzed data presented in a **.csv** format (comma separated values). How to perform a file reduction is discussed later in this chapter.

The default location for Session Data files is: **C:\ProgramFiles\Kinder Scientific \Avoidance Monitor\Files**. You can use this location until you are familiar with all the workings of ***AvoidanceMonitor***.

2.4 *Creating a Test Session*

To create a new test session click on **File** then **New**. A screen similar to Figure 2-15 will appear.

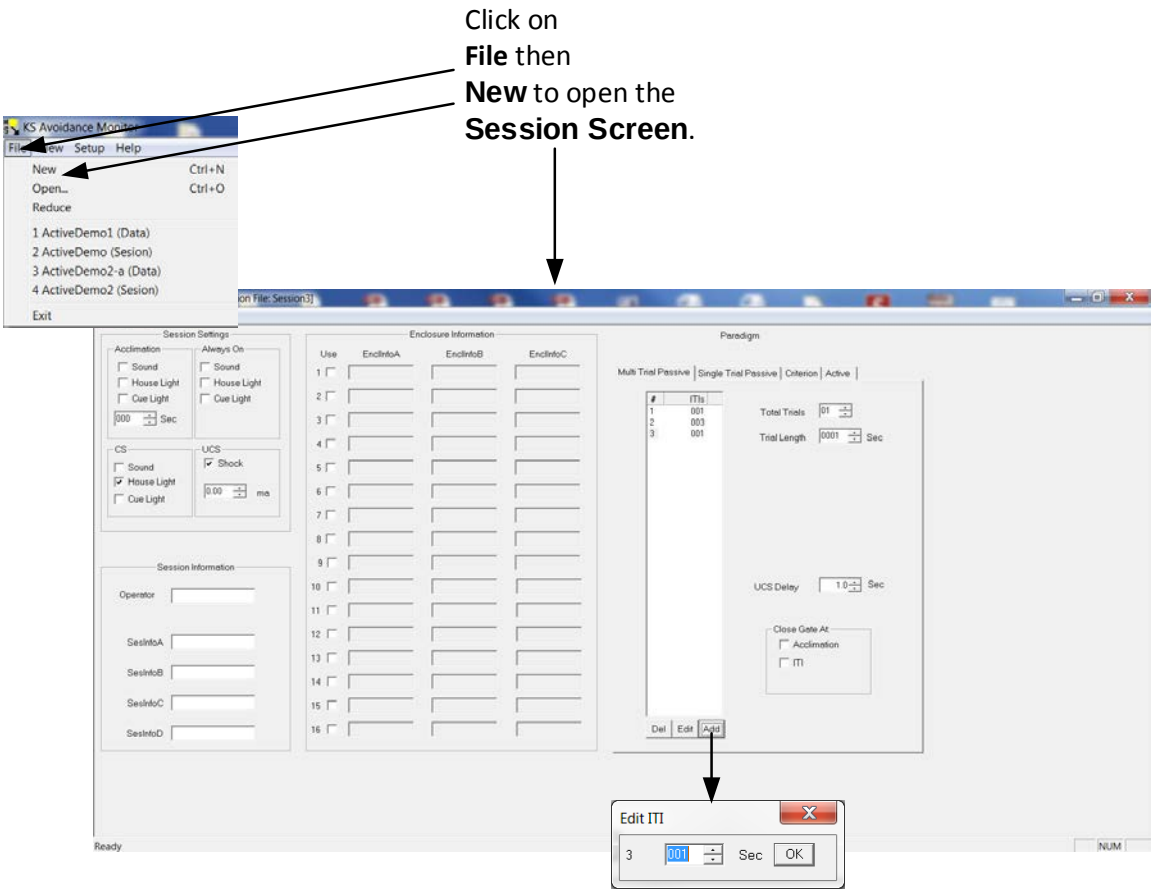


Figure 2-15. *Session Screen*

There are four areas to make entries:

1. **Session Settings** – Enter Acclimation time, select the Controlled Stimulus (Sound, House Light, Cue Light), select whether or not these stimuli will be taking place during acclimation (**During Acclimation** check box), and select Uncontrolled Stimulus (Shock, Air).
2. **Session Information** – Enter up to four optional fields of text to attach to the data file.
3. **Enclosure Information** – First, select a **Use** box for each station you want to activate. Enter up to three fields per subject of text information to carry along with the data file.
4. Select a **Paradigm**, and if applicable, enter desired ITI's (Inter-Trial-Intervals). Here you may enter one specific ITI that will be used consistently, or enter any pattern or random pattern of ITI's.

NOTE

If you have more than one trial, you must enter at least one ITI. As shown in Figure 2-15, the **Add** button has been pressed to activate the input screen where you can set the value of the next ITI.

Once all fields are set, you can either **Run** a session as determined by the settings or you can first save the current settings as a **Saved Session.** If you save the current settings as a **Saved Session,** you will be able to re-load the session information repeatedly and run additional sessions without the need to re-enter all the parameters. To save the current settings click on **File** and **Save As** and give the file a unique filename for future reference.

Once you are satisfied with the current settings you are ready to run a session. Click on **File** and then **Run**. A screen similar to Figure 2-16 will appear.

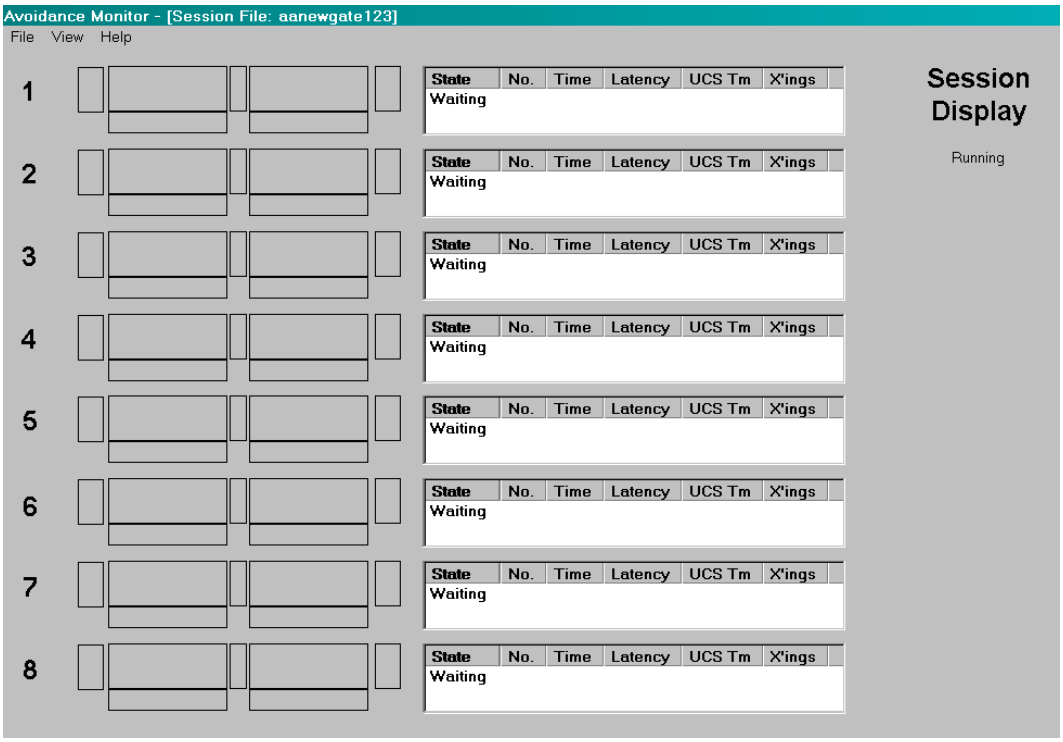


Figure 2-16. Initial Session Display

NOTE

The session display examples in Figures 2-16 and 2-17 show the maximum eight stations. Depending upon the number of stations you are running, your display can have anywhere from one to eight stations.

The system is now waiting for you to load subjects and press the start button for each enclosure. Because each enclosure has an independent timer, you may press the start button on each enclosure as you place the subject. After you have loaded all subjects into the enclosures and pressed the start button, your screen will appear similar to Figure 2-17.

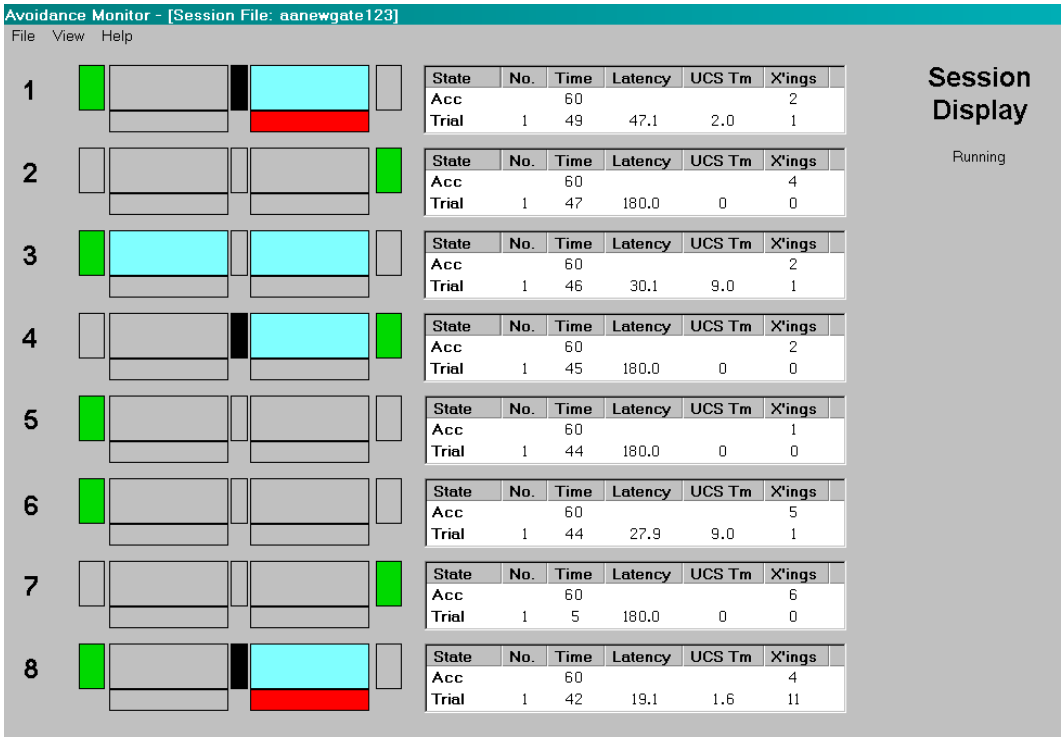
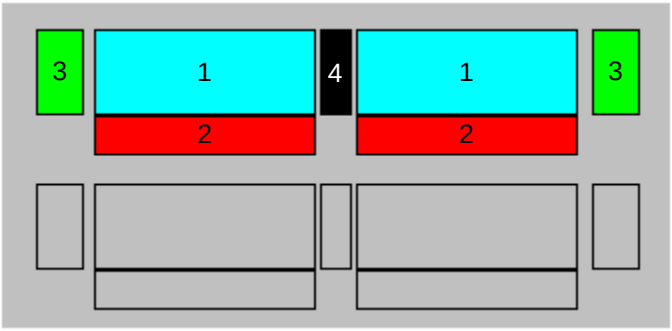


Figure 2-17. Session in Progress Screen

Note that there are several color indicators to help you observe the subjects as the session progresses. Table 2-1 provides a brief description of what the colors mean.

The session will progress automatically and when all enclosures are completed the system with display the word **Finished**.

Table 2-1. Session Status Color Description

COLOR	FUNCTION	INDICATION
1. BLUE	Arena Status	Blue in this area indicates photo-beams are being broken (test subject is in the specified arena). Gray indicates no activity.
2. RED	UCS Status	Red in this area indicates Unconditioned Stimulus (UCS) functions are active in the specified arena (shock, air puff). Gray indicates the function is inactive.
3. Green	CS Status	Green in this area indicates Conditioned Stimulus (CS) functions are active in the specified arena (cue lights, house lights, sound). Gray indicates the function is inactive.
4. BLACK	Gate Status	Black in this area indicates the gate is down (closed). Gray indicates the gate is up (open).
		

2.5 Reducing Completed Session Data Files

You can select any number of files for reduction and have the resulting data placed into a single file. To do this click on the desired files in the **Documents in** list, one-at-a time, until you have all desired files highlighted and then click the right chevron. This will add the selected files to the **Documents to Reduce** list. Another way to create the list is double click each file. Each double click automatically moves that file to the **Documents to Reduce** list. If you make a mistake and move a file that you actually do not want on the list, simply click on the file in the list and then click the left chevron. The two double chevrons move all files back and fourth. These features are described in Figure 2-18 and the references that follow.

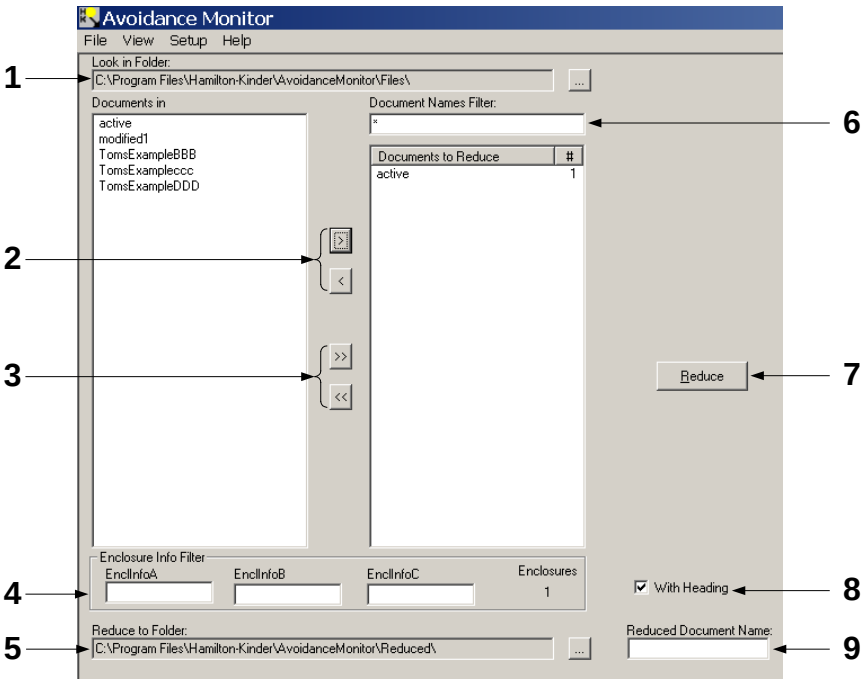


Figure 2-18. Reduce File Selection Screen

1. **Look in Folder:** This is where the source files for reduction are located. If you have created multiple folders for file management purposes you will need to tell the software where to look for the data files you want to reduce. To do this click on the browse button at the end of the **Look in Folder** field and select the appropriate path.
2. **Left/Right Single Chevrons.** Used to move *single* or *selected* files back and forth.
3. **Left/Right Double Chevrons.** Used to move *all* the files back and forth.
4. **Enclosure Info Filter:** This parameter allows you to select certain subjects by field. This is based on the information placed in the **Enclosure Information** fields located in the Session Screen (refer to Figure 2-15).
5. **Reduce to Folder:** This is the output file destination. You can direct the output file to any folder or drive you desire, including network drives. The easiest way to do this is to use the browse button and select the desired folder. This is because the path must be exact.
6. **Document Names Filter:** Enter in this field a key word or words specific to certain files. Only those files containing the key word or words will be displayed in the **Documents in** list.
7. **Reduce:** This button initiates the reduce function.
8. **With Heading** Check this box if you want column names to be included with the reduced file.
9. **Reduced Document Name:** This is where you give the reduced file a name. Remember to add the **.csv** extension to the file name. You can send the output file to any drive and folder location your computer has access to, including network drives.

2.6 Grid Leak Test

The purpose of the Grid Leak Test is to make sure that the AvoidanceMonitor grid assemblies are not contaminated. Test subject urine and feces creates a film in the area between the bars and causes a reduction in current delivered to the test subject. This is a very important test as it warns you that the grid assembly requires cleaning (Figure 2-19).

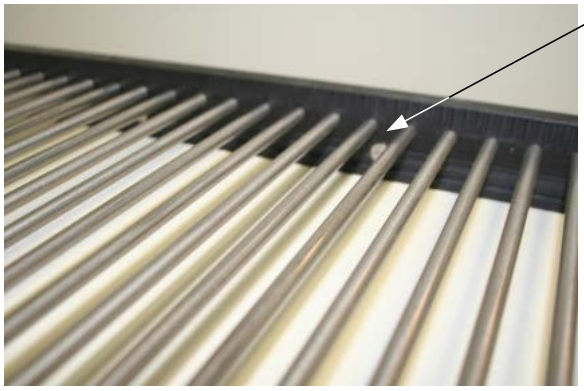


Figure 2-19. Grid Assembly Cleaning Location

The grid leak test function makes the current set point 1/4 full scale (0.64 mA), and the hit criterion is 75% + 1 bit. After the test is triggered, each grid is scanned eight times. If there are a total of 16 or more hits over 8 scans for all grids, a fault is indicated. So, two grids with a low enough resistance between them to pass 75% of (0.64 mA), consistently, would trigger a fault indication.

When cleaning is required, clean between the grid bars with soap and water or run the assembly through a cage washer. An abrasive pad helps to remove stubborn deposits. Make sure *everything* is completely dry before use or a false grid leak failure may occur.

The grid leak test is initiated as follows:

1. First, press the **REMOTE/LOCAL** button located on the Station Service Pack (Figure 2-20).
2. Make sure the bottom line on the LCD display changes from **Remote** to **Local** (Figure 2-21).
3. Next, press the **GRID TEST** button. This initiates the grid leak test.
4. Once the test is completed, the LCD display will say **OK** or **FAULT!**. Pressing the button again stops the test.

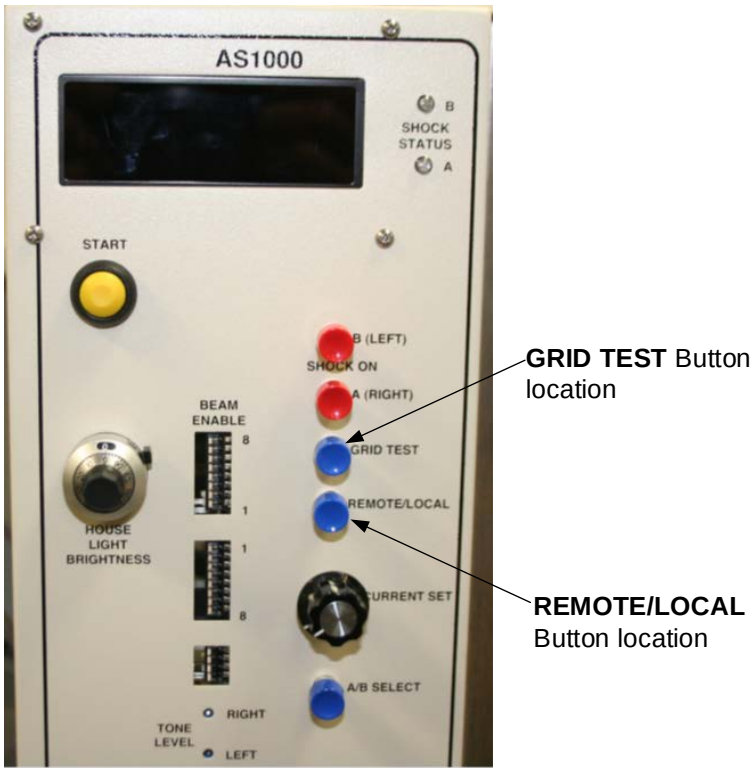


Figure 2-20. GRID TEST and REMOTE/LOCAL Button Locations

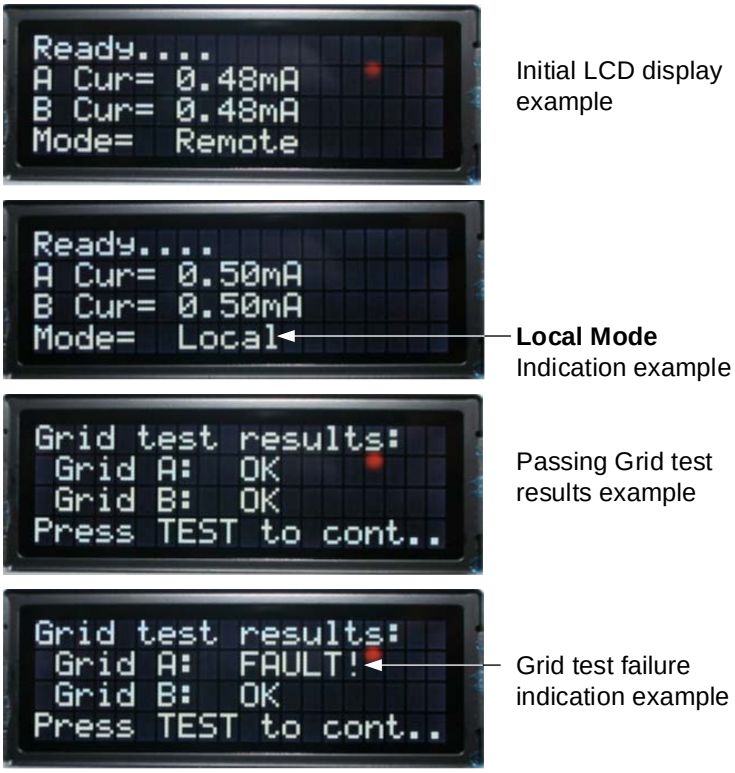


Figure 2-21. LCD Display Examples

- The grid leak test should be performed prior to performing daily use. If a grid leak failure occurs at this time, clean the grid assembly before use.
- If the station develops a grid leak fault between sessions, you should clean the grid assembly after two consecutive grid leak test failures.
- If a fault indication develops during runtime, the grid assembly should be cleaned immediately.
- Grid assemblies should be cleaned in a cage washer between studies.

2.7 GLP Considerations

Much consideration has been given to how Kinder Scientific products will service the needs of GLP level labs. Along with a highly detailed effort to provide all the documentation, training and archiving needs there has also been an effort to build in certain features that will ultimately service the need for 21 CFR Part 11 for the FDA. This mandate requires GLP labs to insure the data files to contain audit trails, electronic signatures and much more. To help with this requirement ***AvoidanceMonitor*** products have all related information stored in the raw data file. The configuration used, information input, operators name and more are included in each raw data file.

2.7.1 Microsoft® Windows™ XP Pro or Win 7 Pro for GLP

AvoidanceMonitor II was designed to run in Windows™ XP Pro or 7 Pro.

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GLOSSARY

Acclimation

A form of reversible physiological adaptation by which an animal is able to alter its tolerance of environmental factors.

Beam Break

This is the occurrence of a photobeam pair being blocked. The opposite of Beam Cleared.

Beam Cleared

Normal condition when there is no obstruction between the Light Emitting Diode (LED) and the Phototransistor. The opposite of Beam Break.

Conditioned Stimulus (CS)

In classical conditioning, a stimulus, which originally does not evoke any response similar to the unconditioned response, but which during conditioning, acquires the property of eliciting this response or a similar one. The original neutral stimulus.

Inter-Trial-Intervals (ITI)

A user-defined time partition used during data analysis. Specifically, an ITI is a user-designated time interval *between* trials.

Output Reduction File

This file is created by funneling any variety of data files into one reduction file. The resulting reduction file will then contain all the requested measures. It is a comma-delimited file especially set up for easy export into spreadsheets or statistical programs.

Paradigm

An example serving as a model or pattern.

Session

A complete data collection sequence for all enclosures listed in a single-session data file. Put simply, the data collected from a single press of the start button of each enclosure selected for that session.

Session File

A binary file containing all the header information entered by the user including duration, session parameters, enclosure information, and the actual data generated during the session.

Session Template

A file containing commonly used header information. The user can create a variety of session template files and store them away for repeated later use. This is a time saving technique to help save the user from repetitive typing of commonly used information. Typically contains duration, session description, session information labels and data, and enclosure information labels and data.

Unconditioned Stimulus (UCS).

In classical conditioning, a stimulus which evokes or elicits a regular and measurable response (the unconditioned response).