# E-1 Digital Control Surface

Technical Guide

General Information

Introduction

Evolution 1 is a new control surface that revolutionizes small footprint networkable consoles by including an integrated LCD display that eliminates the need for an external video monitor while still providing all the metering and control access needed in a surface of its class. Offering the full functionality of Wheatstone's large E-Series surfaces, the E-1, when paired with the WheatNet-IP 88cb audio console Blade/mix engine, creates a powerful networkable or standalone solution. Four mix output buses and individual fader bus minus with talkback are just two of the standard features. The E-1 also has event recall, three monitor outputs, and pan, and mode for each channel. It has an array of programmable master panel switches for customized functions like phone, intercom, salvos, or machine commands. The E-1 drives a LCD display, via the Embedded E-1 Graphic User Interface (GUI), providing hi-res REALTIME graphic displays, production tools, and set up screens (security protected by multilevel pass codes). An RJ-45 Audio Transport MIXER connector on the rear of the control surface serves as the link between the surface and the network system.

Unpacking and Installing the Control Surface

The E-1 digital audio control surface and its power supply, connecting cable, and technical manual are shipped in one packing box. The control surface can be unpacked by one person by grasping the surface at both sides, and lifting it upward out of the box. Remove packing materials and store them in the box for future use. The E-1 is designed for simple drop-in installation in a counter top. Cutout dimensions (in inches) are shown in the drawings below. Avoid proximity to any electromagnetic fields, such as large power transformers, motors, and fluorescent lighting fixtures.
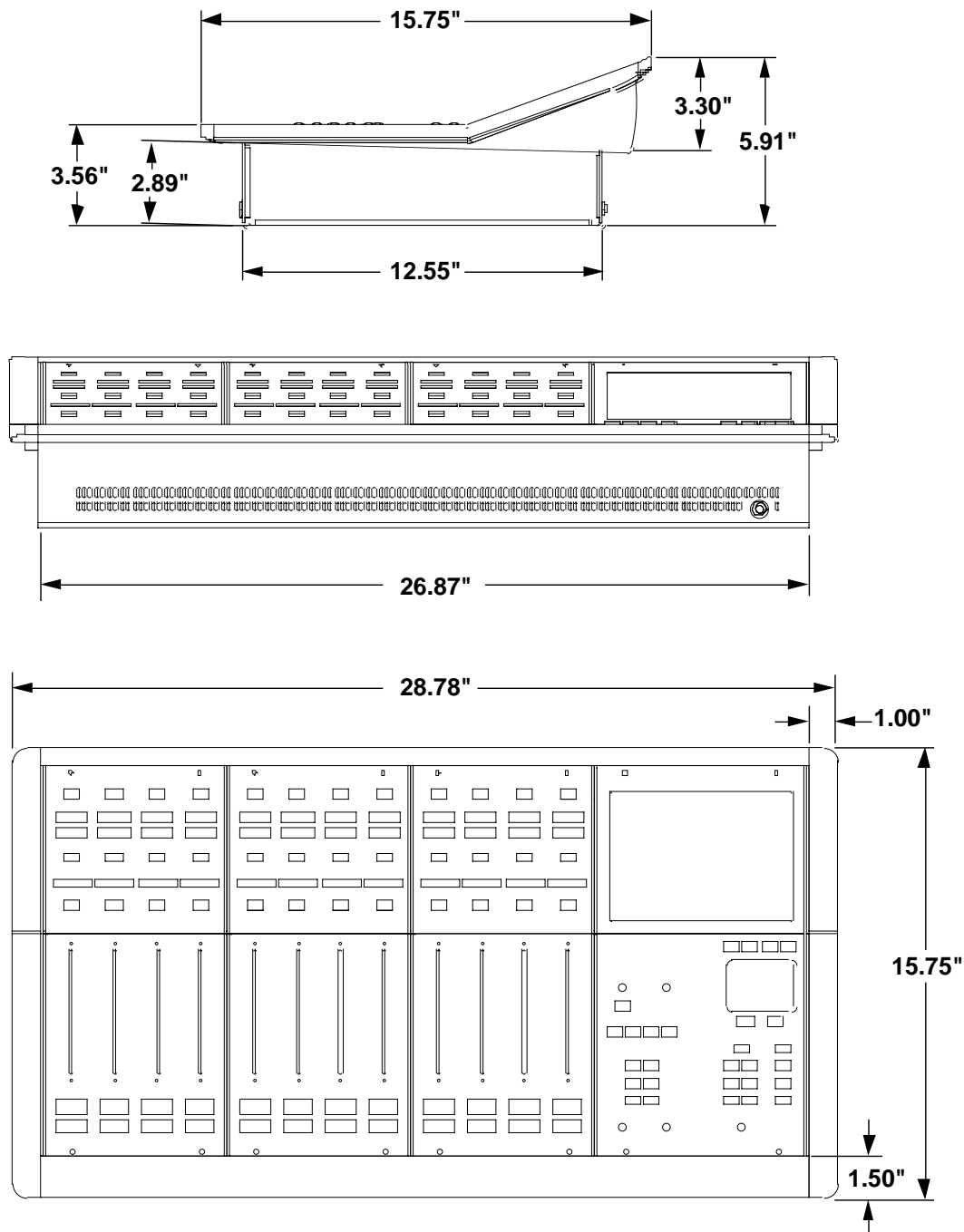
I/O Connections

All user wiring to and from the E-1 control surface is made via connectors located on the control surface's rear panel. Two jacks at the center of the control surface's rear are for power supply connections. An external stereo, line level headphone signal plugs into the female DB-9 connector, located next to power supply jacks. This signal is routed to internal amplifiers that feed the headphone jack, located on the front right-hand side of the surface's pan. There are two RJ-45 connectors; the one labeled ENET connects to a standard Ethernet network switch and the MIXER connector connects to a specific DSP card in an E-Series SAT cage. A PS-2 connector for keyboard rounds out the rear panel. The sketch below shows connector locations. For all wiring pinout connections refer to Chapter 4.
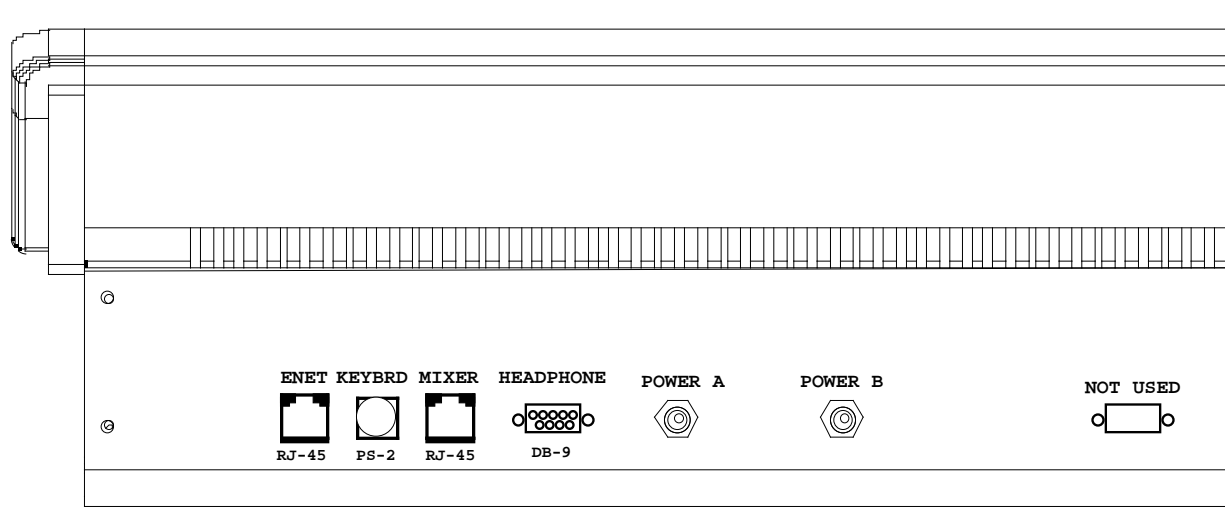
Getting Started

The E-1 control surface comes with the E-1 Embedded Graphical User Interface (GUI) program, intended to be straightforward in use, controlling and displaying graphics, production tools, and set up screens. All controls of the GUI's main screen are in fixed positions, except that the FUNCTION DISPLAY area contents change according to selected function.

Power up the surface, and the GUI will appear on the LCD display. The surface's Master Panel has a built-in touch pad to control the mouse pointer on the VGA screen for system software navigation.

We will also refer throughout this manual to the XPoint program. This program, which runs on a user-supplied PC running Windows XP, complements the embedded surface GUI program, providing additional programming and control functionality. Read more about XPoint in the Wheatstone Evolution Series Digital Audio Network System Technical Manual.

Log-In

When the surface boots, it enters the log in level that was last accessed. Look in the lower left corner of the VGA screen to see the button that display the current ACCESS AUTHORIZATION level. Pressing this button opens the PASSCODE ACCESS window. Select a user level - *Intern, Operator, Production, or Engineering* - with the mouse, then enter a numeric pass code and press the OK button. All default passcodes are "111." Please see the *Master Panel - Control Modes* section of this manual for detailed information regarding passcodes.

Tabbed Navigation

The E-1 features a "tabbed" navigation architecture to easily access features with a minimum number of mouse clicks. There are a few subtleties you need to be familiar with to efficiently get around the tabbed software screens. This section introduces you to the tabs; detailed function information is included in the *Input* and *Master* panel sections.

The E-1 VGA monitor is vertically divided into two halves with a METERING PANE on the left side and a FUNCTION PANE on the right side. The Main Menu Tab buttons are located across the top of the function display area. You may access any of the Main menu Tabs by simply clicking on them. To access Input functions you can also press an Input SET button, and the Function Pane will jump to settings for that input fader strip.

Notice the "Button Bar" at the bottom of the Input screen. You can access powerful programmable features here.

Main Tab - displays Timer/Clock, Current Event, Switched Meter, and the External Sources for monitors.

Input Tab - displays interactive Source window, Mode, and Pan settings for the selected channel. Note you must press an Input fader's SET button to show the settings for that channel, or click on a CHANNEL STATUS button in the lower left side of the VGA to access any fader.

Input Button Bar - click on *Source, VDip, Load, and Save* to access these features, described later.

Events Tab - the E-1 can store a "snapshot" of the entire control surface in a file called an EVENT. The Event Pane is divided into two sections. The Event Recall section lets you recall previously saved Events. The Event Editor is a manager for creating, editing, and deleting Events. Optional permissions let you limit access to Event Recall and Event Editor functions.

Options Tab - a wide variety of programmable options are found here to customize the E-1 for your application.

Note: Each Tab is described in detail in subsequent manual sections.

Input Panel (IPE-1)

Controls and Functions

Each input panel of the E-1 digital audio control surface has four identical strips representing four input channels. You control how each channel is set up by pressing physical switches on the surface and configuring software settings through the *Input* Tab.

A/B Button - Source Switching

The A/B button located at the top of each fader strip provides two different functions. The first use of the A/B button is as a source selector for the fader strip.

Each fader can be programmed to quickly switch between two different sources, designated as the A source and the B source. A quick press of the A/B button switches that fader between its A and B sources. The SOURCE display for that fader indicates the name of the source currently selected. Thus, if A is currently selected, its name is shown, and tapping A/B changes the source to the B source, and at the same time shows the new name in the display.

If you have the A source currently selected and have no source programmed as the B source, then a quick tap on the A/B button will switch off the A source to that fader, and the display will say NOSOURCE. If both A and B are programmed for the same source, tapping the A/B button will have no real effect.

Note that A and B designations are arbitrary, in the sense that the operator will not know if the current source is A or B, but will know only the name of the currently selected source, which is, after all, the important piece of information.

A/B Button - Select Mode

Aside from the A/B button, the fader strip has several other controls. Channel on and off, fader level, cueing, talkback, and output assign can all be done from the fader strip, and these functions are addressed in more detail below. However, there are other functions we may want to adjust for each fader. These additional functions are controlled from the master panel. But how does the master panel know which fader it's adjusting?

Press the fader's A/B switch and hold it until the button lights (as opposed to tapping it for source switching). This switches the VGA screen to the *Input* tab for this fader, where you can change the programmed sources for A and B, select the fader mode, adjust panning, and set up VDip. All of these functions are covered in the following paragraphs, with the exception of VDip, which is discussed in the next chapter on the master panel.

You can deselect the selected fader by pressing and holding the A/B button until the light goes out. You can also select a fader from the VGA screen by clicking on the CHANNEL STATUS button of the fader you want to select, or deselect an already selected fader by clicking on its CHANNEL STATUS button.

Once lit, the A/B button stays lit until you light A/B on a different fader, or deselect the fader, or until a timeout of approximately 20 seconds occurs. This timeout is optional, and can be defeated in the options text file, which is discussed in the appendix.

Input Tab Display

When you press and hold an Input fader's A/B button the Tab display switches to the *Input* Tab for that channel. You can click on various buttons to configure the channel for your application. Note that the Source window is interactive.

NOTE:
When A/B is pressed and held, the FUNC-TION PANE displays the last feature selected from the Input Tab's "Button Bar" — Source - VDIP - Load - Save

A Button Bar located near the bottom of the *Input* Tab provides for navigation between the SOURCE, VDIP, and Preset LOAD-SAVE screens.

A typical *Input* Tab SOURCE screen is shown below, followed by descriptions for each of the functions. Other screens from the *Input* Tab are discussed at the end of Chapter 3.

Currently selected fader strip

Function Tabs

Function Pane

Button Bar

Source Window

Click in the SOURCE window to open the signal tree. Highlight a source name in the tree and double-click to select it.

You may use the Visibility feature in XPoint to limit the signal list the user "sees" when selecting sources. This feature is especially useful in large systems with lots of sources.

Visibility for input sources can also be set from the surface. This procedure is outlined in Chapter 3.

Fader Mode Controls and Indicators

There are four available channel modes: Stereo, Mono, Left only, and Right only. Click on the desired mode and its virtual switch will light.

STEREO – selects stereo mode; Left in feeds fader L, right in feeds fader R. If a mono source is selected, it will feed both L and R.
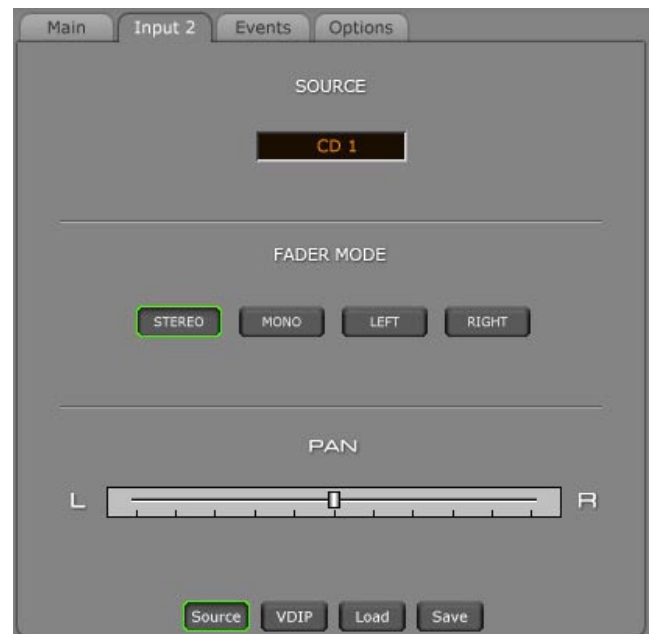
MONO – selects mono mode. If a stereo source is selected it is summed to mono and reduced by 6dB.

LEFT (left only) – passes only the left channel of a stereo source to both L and R.

RIGHT (right only) – passes only the right channel of a stereo source to both L and R.

Pan

L/R - slider moves the signal left to right.

Save

The user can save all adjustments with the SAVE button. Pressing the SAVE button will bring up the "SAVE TO" form that allows all changes to be saved to a channel, a source, an event, or a preset.

Other Physical Switches and LEDs

Assign

Output switches assign the selected source signal to any combination of the surface's four stereo Program outputs—A, B, C, and D (also known as OL, or Off Line). The button will be lit when the source is assigned to its respective bus. To remove a source from the bus, press the button again; the light will go off to indicate that the source is no longer assigned to that bus.

TB Switch

The TB BUS- switch routes the TB BUS audio, typically the operator's microphone, to the BUS MINUS output for that channel, allowing the operator to talkback to the talent hearing that BUS MINUS signal.

LED Readout

An 8-character display shows the name of the audio source selected to the fader.

CUE Switch

The CUE switch assigns the selected source to the CUE bus, letting the control surface operator monitor the channel's pre-fader signal.

Bus-Minus / Direct Outputs

Each fader has a dedicated Bus-Minus output that includes all active faders on its selected source bus, except for itself. These auto generated monaural mix-minus signals may be routed to feed telephone hybrids, or other devices as required Bus-Minus mix outputs for each surface fader appear as Sources in the Surface signal area of XPoint, typically located above source signal ID1001. A typical Bus-Minus output signal name is *E1BM01* but the exact name depends on the fader and surface ID number.

Any of the four PGM busses may be selected in the VDip settings (see the section on VDIP Settings in Chapter 3) as the source bus. Also in VDip, the OL Bus (PGM D) may be selected as the source bus when the channel is off regardless of the bus selected as the (channel on) Bus-Minus source.

Another selection that can be made in VDip is to repurpose the fader's Bus-Minus output as a Direct Output.

Fader

Channel output level is set by a 100mm, professional, conductive plastic linear fader.

Channel ON Switch

The channel ON switch turns the channel signal ON and fires any channel ON (START) logic mapped with VDip to the fader's source signal. The switch LED lights to indicate the channel is ON.
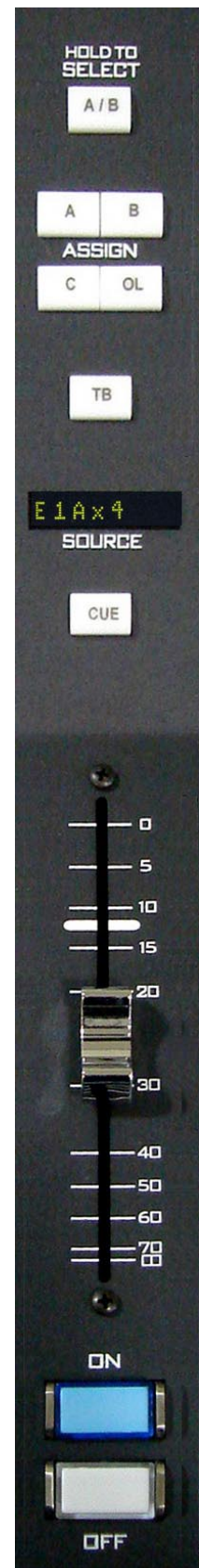
Channel OFF Switch

The channel OFF switch turns the channel signal OFF and fires any channel OFF (STOP) logic mapped with VDip to the fader's source signal. The switch LED lights to indicate the channel is OFF.

Channel Status Buttons Display

A row of numbered buttons along the bottom of the main VGA screen shows the status of each channel. When a channel is OFF with the fader down its corresponding button appears gray. If the fader is brought up with the channel remaining OFF the button turns yellow. If the channel is ON and the fader is down, or if the channel is ON with the fader up but not assigned to any of the four PGM buses, the button color becomes green. If the channel is ON, and the fader is up, and the channel is assigned to one of the four PGM buses, the button color becomes blue.

The CHANNEL STATUS button will also indicate a "logic lock" situation, which happens when a signal is assigned to multiple channels, either on the same surface or on different surfaces. As long as all of the affected channels are OFF there is no indication. But as soon as one of those channels is turned ON, the indicator, which consists of a padlock icon, will appear on the CHANNEL STATUS button of the rest of the affected channels. The purpose of the indicator is to tell the operator that the signal on that channel is in use elsewhere, and that logic control for the signal is owned by some other channel in the system. Operators should be made aware that logic associated with a signal will not act as expected when the logic lock indicator is ON.

When viewing the Input tab on the VGA screen, the CHANNEL STATUS buttons can also be used to select the channel that settings are displayed for.
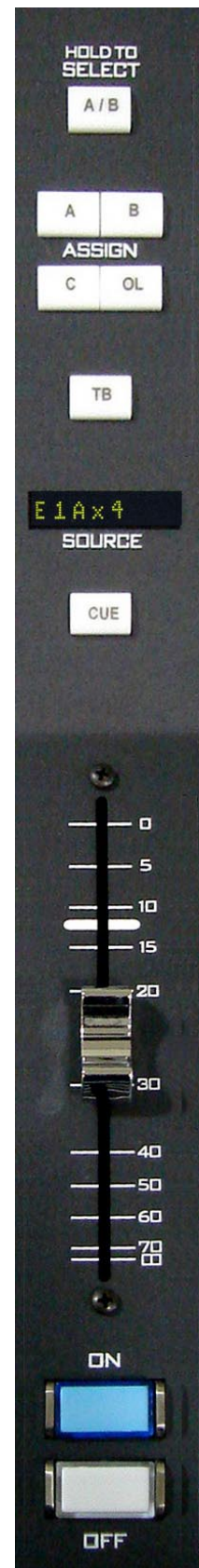
Master Panel (MNE-1)

Controls and Functions

The E-1 digital audio control surface is equipped with one MASTER panel. This panel contains numerous controls, including INPUT SOURCE select, CUE control, TIMER control buttons, four PROGRAMMABLE buttons, and three MONITOR sections with buttons to select PROGRAM sources, plus two additional EXT (programmable) sources, as well as level controls. Add to that a TB button for STUDIO monitor, a group of four switches to deal with various operational modes, and a mouse pad with two buttons to aid in navigating the VGA screen.

SELECT Knob

The SELECT knob serves as a Source signal selector for fader strips.

• When the A/B button is pressed and held on the desired fader strip AND the Input Tab is positioned on the main SOURCE screen, the SELECT knob can be used to select the desired source. By turning this knob, the available inputs are displayed in the 8-character SOURCE display for the selected channel. When the desired input source is scrolled into the SOURCE window, pressing the SELECT knob will cause that source to be switched to the input of the channel. If you fail to press the knob, the display will revert to its original setting after a timeout of approximately 4 seconds, and the original source remains in effect. Note you can also simply click in the SOURCE window on the Input Tab, or press the SELECT knob on the Master panel, and select the desired Source from the signal list.

• When no A/B button is lit, pressing the SELECT knob will open a screen showing a full list of input sources and locations for quick source selection on a fader, or for making other connections within the system. This operation may be denied to a user in the Access Authorization settings.

Sources can also be selected in the XPoint program.

The XPoint matrix is analagous to an electronic patch bay. Audio sources (router inputs) are located along the X axis at the top, audio destinations (router outputs) are vertically stacked along the Y axis on the left side. Simply click at the intersection of the desired Source and Destination signals to "patch" them. All surface mixes (eg. PGM busses, Bus-Minus, etc.) appear as Sources, usually beginning at signal ID1001. All surface inputs (faders, talk back, monitor source selects, etc.) appear as destinations, also beginning at signal ID1001. Surface signals may be routed just like any user I/O.

Source Visibility - use the Source Visibility Option setting to limit the sources the user "sees" in the signal tree. This feature is helpful, especially in large systems with lots of signals.

E-1 Mixer Outputs

CROSSPOINT
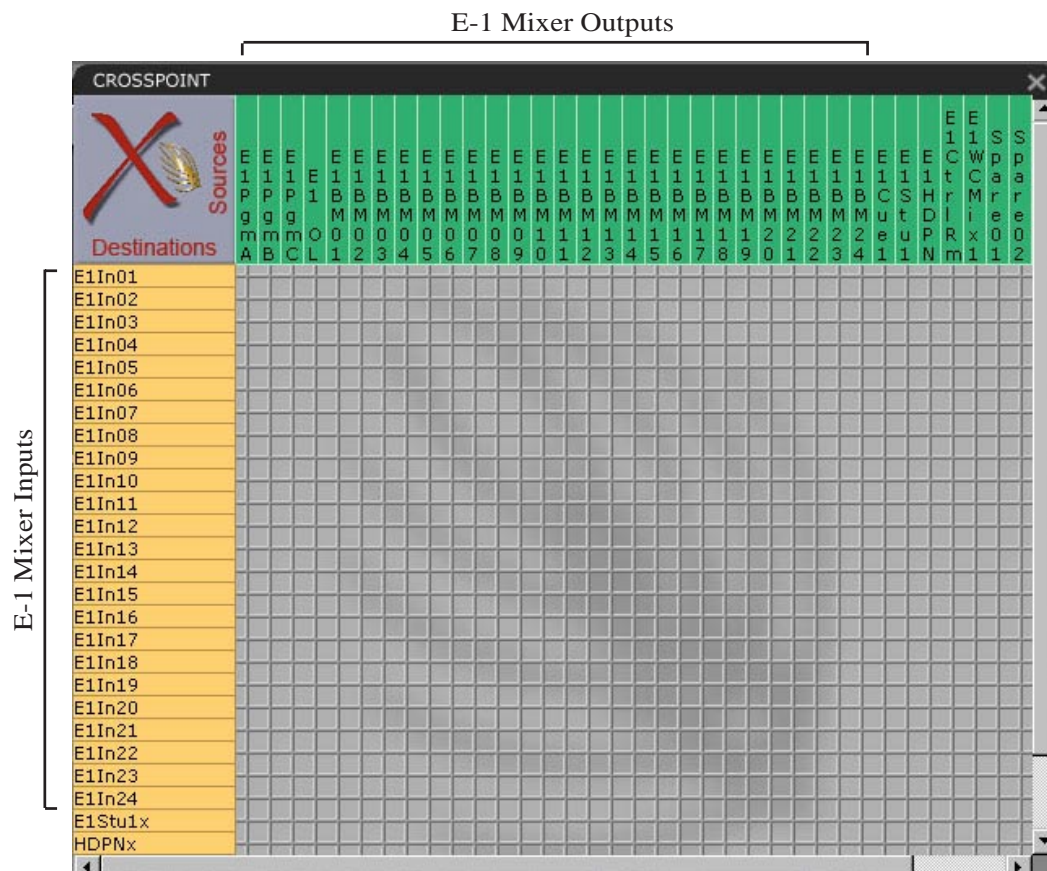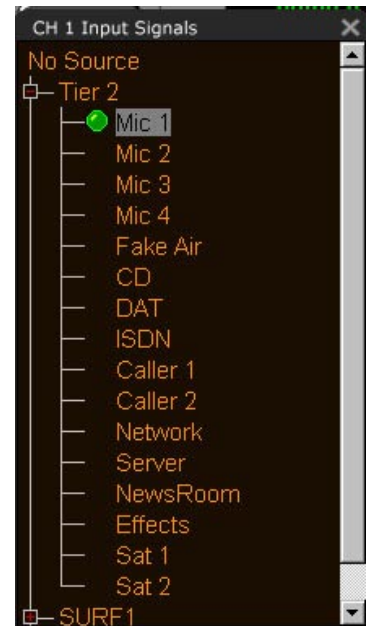
• Press the *Options* Tab on the VGA screen and choose Source Visibility from the AVAILABLE OPTIONS scroll down list to display the Source Visibilities form.
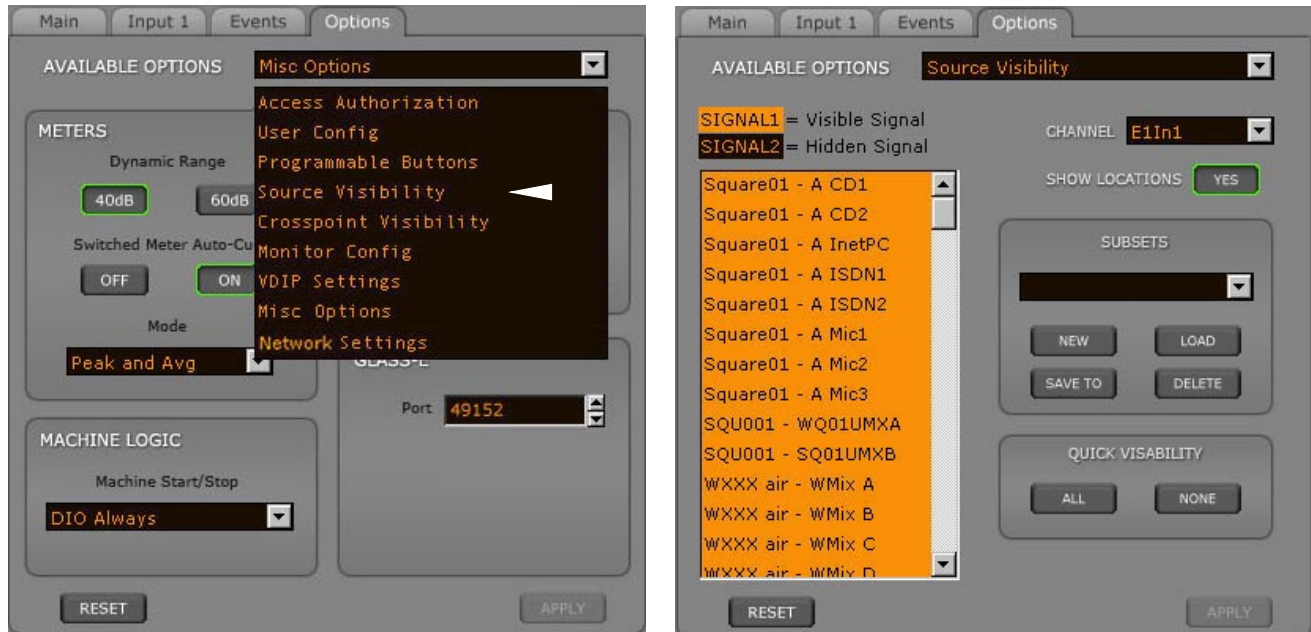
With this form the user can set the channel's source visibilities. Scroll up and down the source list and highlight the desired source signal(s) and click the *APPLY* button to save the visibility options. If you have made changes and then decided you don't want to put the changes into effect, click RESET. This will cancel any changes you made since entering the screen or since clicking APPLY, whichever happened most recently.

In addition to the eight character name of a signal, signals may also have a second identifier, an eight character location, which is typically set up in the XPoint program. Using the SHOW LOCATIONS button on the Source Visibility Options screen you can determine if the location identifier will show up in the Source list on the monitor when setting visibility. Click the SHOW LOCATIONS button to toggle between YES (show locations) and NO (don't show locations).

There are also "QUICK VISIBILITY" selection buttons. Clicking the ALL button will set all source signals to be visible. Clicking the *NONE* button will set all source signals to be hidden.

You can change the channel you are affecting visibility on by selecting the desired channel in the channel drop down box.

You can also make and use visibility SUBSETS. To apply a visibility subset to the current channel, select the subset from the SUBSETS drop down box, then press *LOAD*. After a subset is loaded, you can make changes to it by altering the visibility as described above, then press *SAVE TO*.

CUE Knob

The CUE master level control is located in the center section of the MNE-1 panel. The CUE signal is pre-fader, and is normally used to check signals. When a channel is CUEd, its pre-fader signal will appear in the external cue speaker, and the switched meter screen on the VGA, if visible, will show the level of the pre-fader signal.

The CUE level control determines the overall loudness of the cue signal.

The external cue speaker has the potential for feedback and should be muted whenever the control room speakers are. Use VDip to add the CUE MUTE attribute to any microphone signals located in the control room.

Monitor Speaker Controls

The Monitor section, at the bottom of the MNE-1 panel has the controls for three monitor outputs: CONTROL ROOM, STUDIO, and HEADPHONE. The VGA always displays the monitor level, muting, and options status.

Each monitor has a LEVEL control. CR and HEADPHONE share a bank of source select buttons for PROGRAM, as well as two programmable EXT buttons. The STUDIO section has a bank of source select buttons, and adds a TB button, allowing the operator to talkback to the studio. Each monitor output has options for Muting, Locking the output level, and interrupting the output with Cue audio.

Speaker Muting

To MUTE a monitor output you first need to configure the virtual dipswitches (VDip settings) for each microphone source signal. VDip is easily accessed by pressing and holding the mic input fader strip's A/B button. The VGA automatically switches to the *Input* Tab for that channel. Then choose VDip from the Button Bar near the bottom of the *Input* Tab. Check the Mute boxes as required to mute the CR or Studio outputs when the mic is turned ON. An Options Text File setting determines whether the Mute occurs when the fader is simply turned on or if the fader must be ON, up, and routed to the PGM bus (see Appendix 2 for more information about the Options Text File).

Speaker Level Controls

Monitor level can be controlled from the monitor panel or from the VGA screen controls. The CTRL ROOM, HEADPHONE, and STUDIO level meters on the VGA monitor will indicate the overall loudness.

NOTE: If a monitor output is muted and you turn the level control all the way up,

then remove the condition that has the monitor muted, the sound in the monitor speakers (or headphones) will suddenly be VERY LOUD!

Source Select Switches

Each monitor output section (one section for CR and HEADPHONE, the other for STUDIO) has its own bank of source select switches which select the audio signal sent to the speakers or headphones. Each bank includes dedicated switches for selecting PROGRAM A, B, C, or D (OL), and two programmable sources (EXT 1 and EXT 2). Simply press the desired switch to listen to that output bus or external source signal.

Programming External Source Switches

External switches may be programmed to select any Source signal on the router. Press the external button and hold it for few seconds; the list of the available external inputs will pop-up in the monitor display. Choose the desired external input from this list by using the surface's mouse pad or up and down buttons. You can also initiate the source programming for the external inputs by clicking the EXT source window on the VGA monitor.

While there are separate EXT 1 and EXT 2 buttons for each monitor select bank, the buttons really only represent two stored signal choices. Both EXT 1 switches are mapped to one source, and both EXT 2 buttons are mapped to a second source.

Control Room Section

The control room section of the monitor has a dedicated meter and level knob. The board operator's microphone is normally programmed using VDip to MUTE the control room output and prevent the occurrence of feedback. When MUTE is active, the word MUTE appears in the center of the monitor's meter display.

The CR level may also be locked to a user defined volume level. See the E-1 Monitor Options section below.

Headphone Section

The built in HP amp output signal appears at the headphone jack, mounted on the right-hand front of the control surface's lower mainframe pan. The jack is provided as a place to plug in user-supplied **stereo** headphones having an impedance of **60 Ohms or higher**. A DB-9 connector on the rear of the surface provides a stereo line level input to the HP amp. See Chapter 4 of this manual for pinout information. To get audio into the HP amp, wire any router analog output to the HP amp input. Use XPoint to cross connect the surface's HP mix source signal (e.g. E1HP) to the analog destination wired to the surface.

Studio Section

The Studio output section has a dedicated source select bank, metering, and a level knob. Microphones located in the studio are normally programmed using VDip to MUTE the Studio output to prevent the occurrence of feedback. When MUTE is active, the word MUTE appears in the center of the monitor's meter display. The Studio level control may be locked to a user defined volume level (see the E-1 Monitor Options section below).

Talkback to Studio

The Studio output has a dedicated TB button which lets the operator interrupt the normal feed to the studio speakers with a pre-determined TB signal. Note that the Talkback source, typically the board operator's mic, must first be cross connected to the surface's TB input using either XPoint software or the E-1's built in Route function. The TB signal may be any Source signal in the router, including MXM busses. The E-1's TB input signal is a factory defined surface Destination signal with a name similar to E1TBk. The actual name depends on how many surfaces you have. There is only one TB bus input on the E-1. You can use Programmable Buttons to momentarily route other sources to the Studio output.

E-1 Monitor Options

The Headphone, Control Room, and Studio outputs are normally subject to the control surface's muting and cue interrupt circuits. Use the *Options* Tab > Monitor Config screen to modify speaker behavior.

Cue Defeat - Click on the *Options* Tab, choose Monitor Config from the AVAILABLE OPTIONS scroll down list, and set the Cue Defeat option for Headphone, Control Room, and Studio. If you program a Cue Defeat option to be ON, that means that cue will <u>not</u> interrupt that monitor output.

Level Lock - You can lock any of the surface's monitor level control pots. Use the slider to set a level and switch the Level Lock to be ON. Press the APPLY button at the bottom to confirm. The corresponding LOCK LED will be lit in the monitor speaker section of the VGA.

Events

The E-1 includes a snapshot save and recall feature that saves all of the surface's switch, level, and DSP settings to a unique Event file. These saved Events may be recalled as required at any time. User access privileges may be configured to limit access to Event Save, Recall, or both. Click on the *Events* Tab or press either EVENT button (VIEW or SAVE) on the Monitor Panel to open the *Events* Tab.

The *Events* Tab is split into two sections - *Event Recall* and *Event Editor*. EVENT RECALL, located in the top section of the tab, allows users to select and recall a previously saved Event. Highlight the Event name in the list window, then press ARM, then press TAKE. Note that the board will completely reset to the previously saved state. In order to accommodate Event switching while OnAir, any faders which are ON when the Event is recalled will NOT be affected.

The EVENT EDITOR acts an Event file manager. This is where you create, save, rename, and delete Events. It is pretty easy to use. To create a new "snapshot," simply click NEW and enter an Event name using the pop-up virtual keyboard. Highlight an existing Event name and click SAVE TO to overwrite the Event with the current surface configuration, RENAME to retitle it, or DELETE to permanently remove it.

Deleted Events may NOT be restored.

Control Modes - User Permissions

The E-1 control surface is operated in one of four modes: Intern, Operator, Production, and Engineering. Engineering mode, by default, allows the user to perform all surface functions. To set passcodes, press the *Options* Tab and choose User Config from the AVAILABLE OPTIONS scroll down list.

All four end user modes can have their permission levels modified by any user with permission to do so. This is done by pressing the GUI *Options* tab and choosing Access Authorization from the AVAILABLE OPTIONS scroll down list to bring up the Access Authorization dialog box. Personnel with the designated authority to set the permission levels should spend some time with this dialog box and experiment to see what levels of authority can be granted or denied.
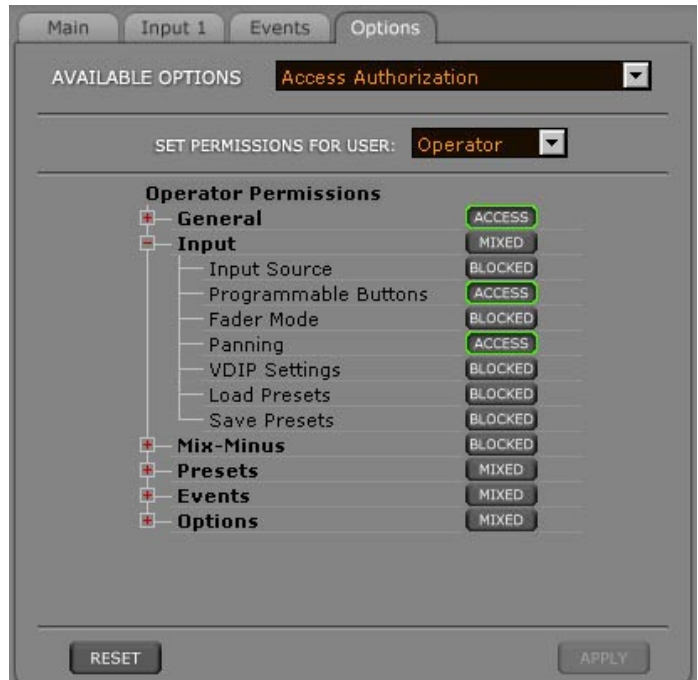
To log in to a given mode, press the button on the lower left corner of the VGA screen that displays the current ACCESS AUTHORIZATION level.

ACCESS AUTHORIZATION

This brings up the PASSCODE ACCESS dialog box. Select the desired mode, then enter the password for that mode. The default password for all four end user modes is "111" and can be changed for each mode by any user who knows the password for that mode. This can be done by clicking the EDIT button on the PASSCODE ACCESS form to bring up the EDIT PASSCODE box, where you enter the old (current) passcode and then enter the new passcode twice and click OK to effect the change.

Password Defaults: "111" for all users.
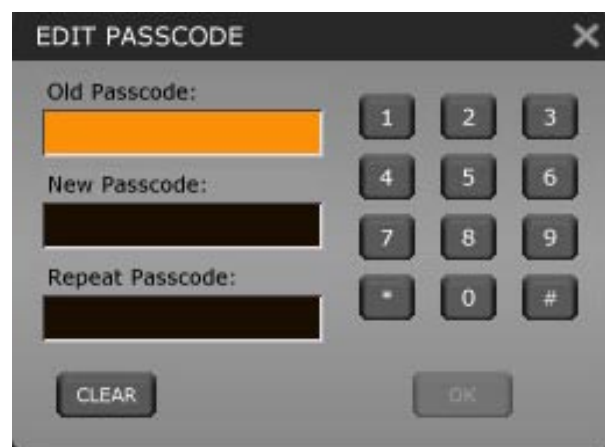
Once a given control mode is selected for a surface, that setting will persist through a power cycle or surface reset.

Switched Meters

The control surface includes a switched meter on the Main Tab. The switched meter displays the signal level of a user selected source - any source on the router - or the CUE signal level when an input fader's CUE switch is activated (but see below to disable this Auto-Cue function). Pressing the METER button will switch the screen to the *Main* Tab if it is not there already.
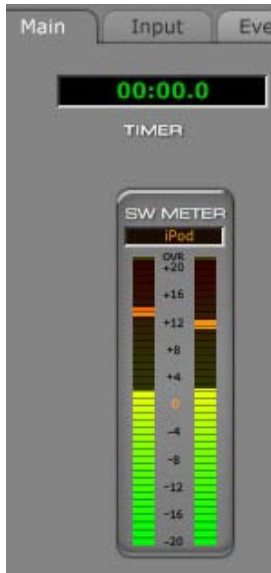
The switched meter display shows the signal source name at the top. Click on this name to bring up the source selection window and change the signal as desired.

A METERS setting on the *Options* Tab allows you to turn off Auto-Cue to this meter.

Timer Section

The control surface timer is provided with an AUTO-RESTART function so that programmed (via the GUI) input modules can automatically reset the timer display (located on the upper-left side of the main E-1 GUI screen) to zero and start a new count, allowing the announcer to easily track his own pace. The AUTO button on the Monitor Panel must be lit to enable this function.

The S/S (start/stop) button halts the timer, holds the last count, and then restarts and accumulates the count when depressed again—perfect for compiling tapes of desired duration.

RESET has a dual-mode capability:

- if you depress it while the timer is counting, the display will instantly reset to zero and start a fresh count;

- if the timer is already stopped, depressing this button will reset the timer to zero, where it will hold until start is pressed.

The HOLD button allows you to hold the display for a longer viewing duration, while still allowing the counter to continue in the background. Releasing the button will then display the current count.
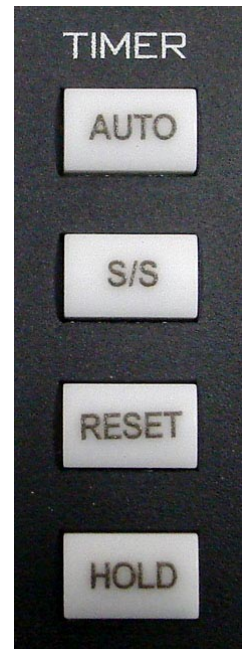
Time of Day Clock

The main Embedded E-1 GUI screen includes the digital and analog displays of a time of day clock in 12 or 24 hour format. 12/24 operation is set by making the desired choice on the *Options* Tab - Misc Options.

To set the time on this clock, run the Wheatstone utility program, WSTimeSet.exe, on a network computer. The program allows you to set the clocks on multiple control surfaces by specifying the IP addresses of the control surfaces in a list. A single command then updates all specified clocks. Program options allow auto updating at midnight or at the top of the hour. See Appendix 1 for details. The time of day is read from the PC's time of day clock so the PC must be kept synchronized to a network time server, GPS clock, master clock system, etc.
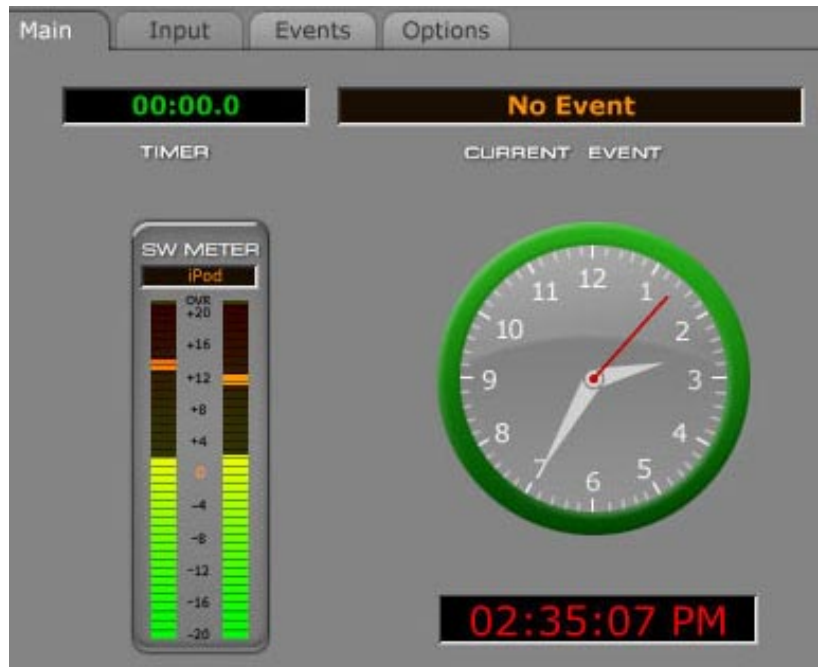
Programmable Buttons

Also known as "Spare buttons," these four (4) switches and indicating LEDs are designed to perform user-programmable functions. Some functions, such as firing Salvos, making temporary connections, or interfacing with the logic input and output ports on system Logic I/O cards, must be configured through the Windows™ XPoint application. See the E-Series Network System manual for details.

Some of the spare button programming can be done via the E-4 GUI. Press the *Options* tab and choose Programmable Buttons from the AVAILABLE OPTIONS scroll down list to display the Programmable Buttons form. You will see a separate line on the form for each of the four buttons; each line has a drop down mode selector, a *FLASH* button, and an *EDIT* button.

• Mode selection - the spare buttons can be operated in various modes:

• None - in this mode button presses are ignored - the button LED is controlled by DIO, which simply means that the LED can be turned on and off by a logic signal in the E-Series Network System - this control would be configured in XPoint

• Toggle - in this mode the button acts like a toggle; one press turns it on and another press turns it off - the button's LED state is controlled by the surface, with the LED lit when the button is on and unlit when the button is off - the actual function performed by the button is configured in XPoint

• Momentary / Surface LED - in this mode the button has a momentary action; it is on while pressed and off when released - the button's LED is controlled by the surface, with the LED on while the button is pressed and
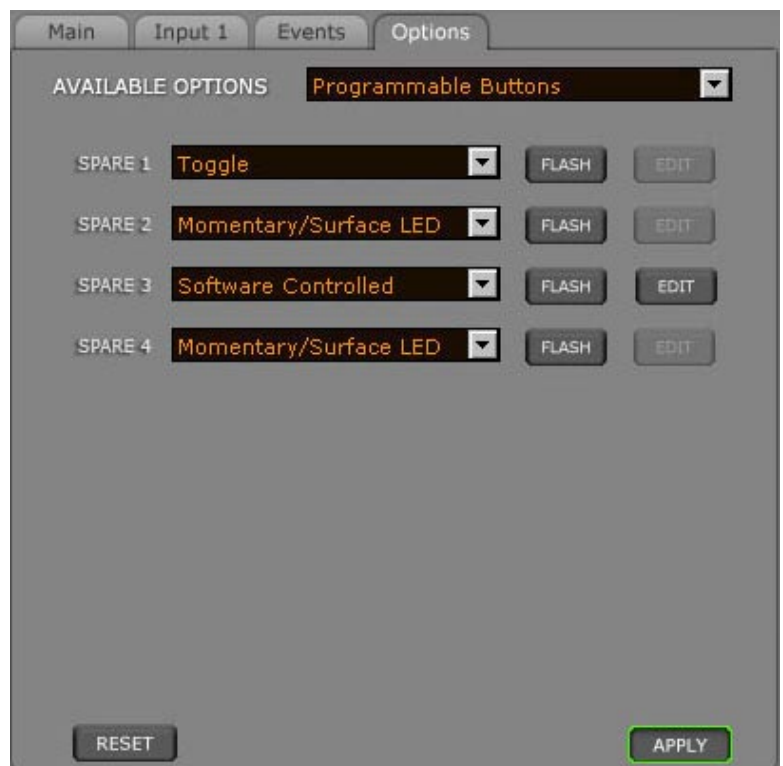
off when it is not being pressed - the actual function performed by the button is configured in XPoint

• Momentary / DIO LED - in this mode the button has a momentary action, with its function configured in XPoint - the button LED is controlled by a system DIO which is also configured in XPoint

• Software Controlled - in this mode the button's function is set up by the E-1 GUI using the EDIT button, as described below - the LED is controlled by the surface and is on while the button is pressed and off when released

• FLASH - press this button to make a particular spare button flash - this helps you see which button you are programming

• EDIT - this button is only active when the spare button mode is "Software Controlled" - in all other modes it is grayed out - when active, this button brings up the Monitor - Pgm Button Y form.
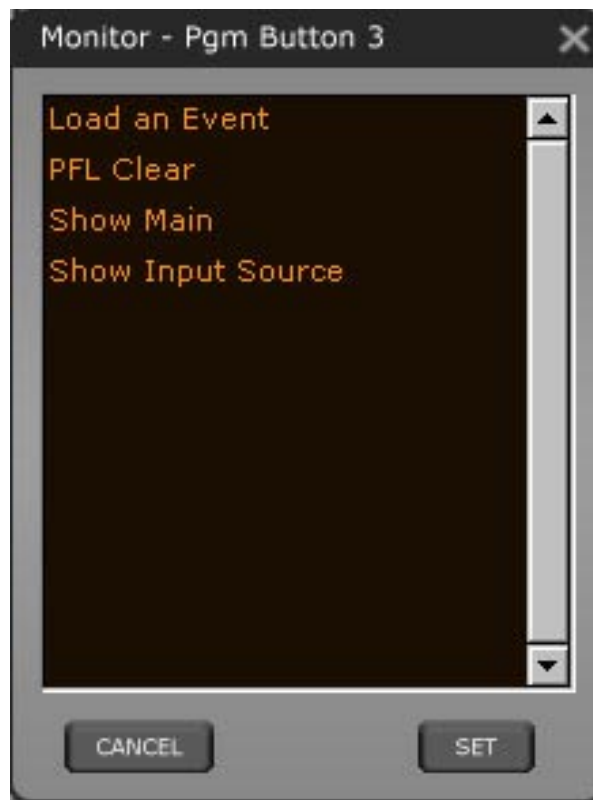
VDIP Settings

Many surface functions, such as Mute, Tally, and Machine Start Pulsed, are programmed from the VDIP Screen. VDip settings are attributes of the Source signal and will follow the signal onto different faders of the same console or even other surfaces, depending on how it is programmed. You may configure VDip from the E-1 directly or by using the VDip dialog box in XPoint software. It is convenient to configure VDip right on the E-1, but you may have to use XPoint if you have other surface models.

To configure VDip DEFAULT on the E-1 press the *Options* tab and choose VDIP Settings from the AVAILABLE OPTIONS scroll down list and then check the functions that will be same for ALL signals.

To configure VDip for a particular source on the E-1, first make sure that the source you need to program with VDip is assigned to an input fader. Press and hold the fader's A/B button and the *Input* Tab will open to the last screen used. Select VDip from the Button Bar at the bottom.
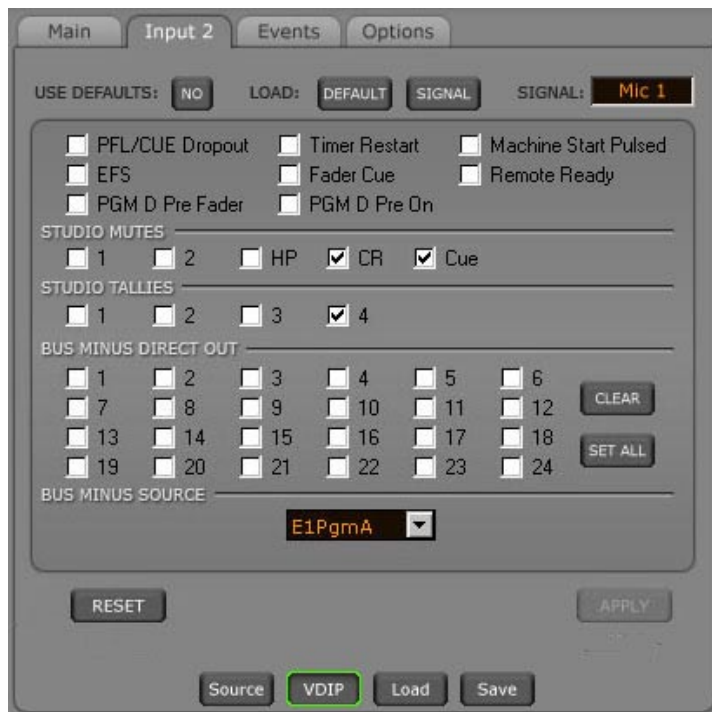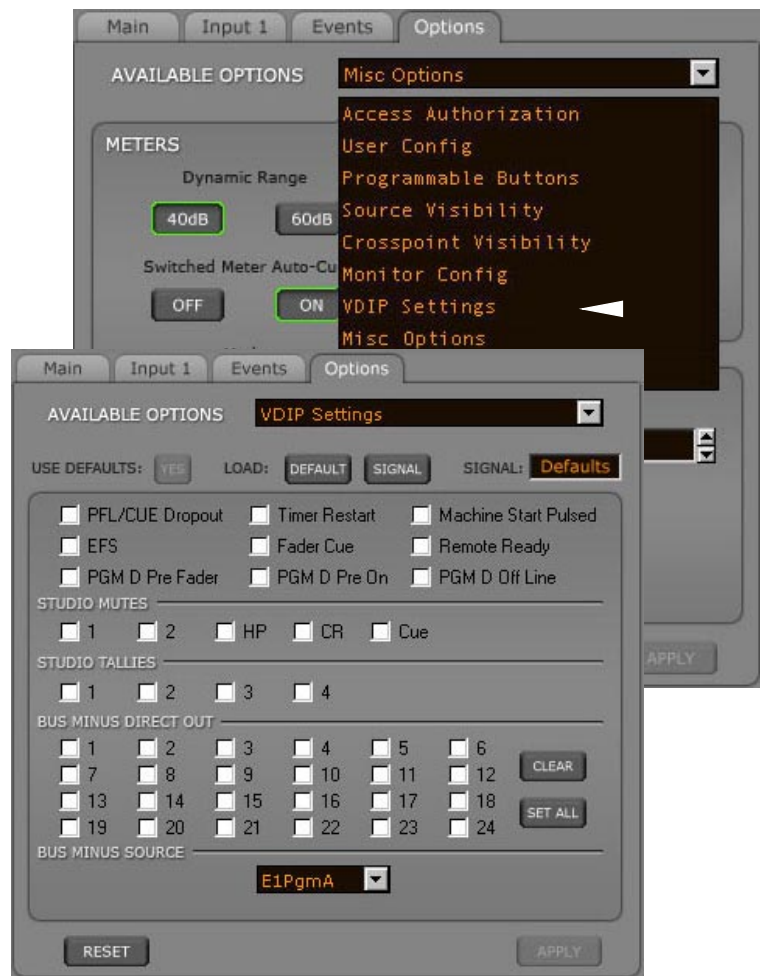
Make sure USE DEFAULTS is NO if you want this signal to work differently than the default settings, and then simply check the functions for this signal. If USE DEFAULTS is set to YES, that signal will use the default settings. Once you have the settings you want, click APPLY.

To load other signals you want to to change the settings of, press and hold another fader's A/B button or click the SIGNAL button and choose which signal to load from the Signal List.

Click DEFAULT to change settings you want to be the same for ALL signals The default settings form then shows the default values used for any signal unless specifically overridden. If you have made changes and then decided you don't want to put the changes into effect, click RESET. This will cancel any changes you made since entering the screen or since clicking APPLY, whichever happened most recently.

PFL/CUE Dropout—When a channel's CUE button is pressed it will assign the channel's signal to the CUE bus. When "PFL/CUE Dropout" is checked it causes the channel's CUE function to be de-activated whenever the channel ON switch is pressed.

EFS—This function causes the channel to be OFF when the fader is fully down or ON when the fader is brought up from the fully down position. The ON and OFF switches can still control the channel.

Fader Cue—Assigns the signal to the Cue bus when the fader is moved all the way down. The CUE button can still be used to change the CUE status.

PGM D Pre Fader—When checked, causes the signal, when assigned to the surface's PGM D output, to be tapped before the fader.

PGM D Pre On—When checked, causes the signal, when assigned to the surface's PGM D output, to be tapped before the channel ON switch.

Timer Restart—The surface's digital timer can be programmed to automatically reset to zero and begin counting up when the channel's ON button is pressed. To enable this function the AUTO button in the timer section of the Monitor Panel has to be activated.

Machine Start Pulsed—This setting allows you to correct for differing source machine ON/OFF control signals to the input channel. The input channel will work with most standard source machines. Occasionally, the source machine, because of the way it is designed, will send overly long control closures to the channel's remote ON and OFF ports - closures so long that they will hang up the module's ON/OFF logic. When this kind of problem manifests itself, setting to "Machine Start Pulsed" will convert the closures to pulses before they get to the channel ON/OFF switch logic.

Remote Ready—The channel's OFF switch normally has its LED indicator controlled by the switch itself. This is the factory default setting. When "Remote Ready" is checked, the channel's OFF switch LED can be controlled by an external source machine. This requires additional configuration in XPoint to fully implement the feature.

PGM D Off Line—This function determines what will be heard at the fader's Bus Minus output when the fader is off. If the box is not checked, when the fader is off the same bus will feed the bus minus that feeds it when the fader is on, as

determined by the BUS MINUS SOURCE selection below. But if the PGM D Off Line box is checked, when the fader is off the Bus Minus output will be fed from the PGM D bus instead.

STUDIO MUTES—Input channels can be programmed to mute the various monitors when the channel is ON. There are five STUDIO MUTES checkboxes, one for each monitor section plus one for CUE. The checked boxes show which speakers are muted. Note that the Studio 2 mute has no effect on the E-1 surface.

STUDIO TALLIES—Turning the channel ON can activate a remote tally indicator. There are four tally control lines. The checked boxes show which tallies are activated. This requires additional configuration in XPoint to fully implement the feature.

BUS MINUS DIRECT OUT—For each fader, determines if the Bus Minus output is a mix-minus of the selected BUS MINUS SOURCE (unchecked) or is a Direct Output (checked). On faders where the BUS MINUS DIRECT OUT box is checked, the PGM D Off Line box (above) will have no effect.

BUS MINUS SOURCE—For each fader, determines which bus the Bus Minus output is a mix-minus of. Any of the four PGM busses can be selected as Bus Minus Source. If, for example, E1PgmA is selected, then the BUS MINUS output will consist of the audio on the E1PgmA bus, minus the signal assigned to the fader. This is true when the fader is turned on. It also true when the fader is turned off, **unless** the PGM D Off Line box is checked (above). This setting will have no effect on any fader where the BUS MINUS DIRECT OUT box is checked (above).

Machine Logic

The surface's start/stop logic options can be selected via the E-1 GUI. Press the *Options* tab and choose Misc Options from the AVAILABLE OPTIONS scroll down list to display MA-CHINE LOGIC choices.

The purpose of this option is to allow the privileged operator to determine the conditions under which START and STOP signals (referred to herein collectively as DIO signals) are sent in response to a command to turn a channel ON or OFF. Channel ON and OFF commands can come from three different sources:

• Surface - a channel can be turned ON or OFF by a surface action, such as pressing the ON or OFF switch, or moving a fader if EFS has been enabled

• Remote (RMT) - a channel can be turned ON or OFF by sending it a command from a system Logic I/O card via the RemOn and RemOff functions, configurable from within XPoint

• Automation Control Interface (ACI) - various automation systems are capable of sending ACI signals to the system via Ethernet to turn channels ON and OFF (and perform other functions as well).

There are four possible start/stop options:

DIO Always—START and STOP (DIO) signals are always sent in response to channel ON and OFF commands, regardless of the source.

No DIO w/ACI—DIO signals are blocked if the channel ON and OFF commands are from an automation system (ACI).

No DIO w/RMT—DIO signals are blocked if the channel ON and OFF commands are initiated from a system Logic I/O card.

No DIO w/ACI or RMT—DIO signals are blocked if the source of channel ON and OFF commands is either automation or Logic I/O.

Note that DIO signals are always issued if the corresponding channel ON or OFF command is initiated by a surface control.

Optional Glass E Interface

Wheatstone offers the optional PC-based software, called "Wheatstone Glass E Virtual Control Surface," that controls the E-1 surface from a remote PC. The Windows XP-based PC software accesses remotely through a LAN/WAN. It brings studio control surfaces anywhere in the world under remote control of an internet-connected PC. Glass E is a graphical replication of the control surface to which it is assigned. All surface functions and features are accessed by the Glass E. The surface presets, system X-Y access, system programming, and configuration are password protected.

Before you can run the GLASS E software to control a particular surface, that surface needs to be set up to allow the Glass E interface to function. In the E-1 GUI press the *Options* Tab and choose Misc Options from the AVAILABLE OPTIONS scroll down list to display the screen that has the Glass E interface options. Enter a Port number (the default is 49152), then click APPLY. The surface is now ready to host a link to the Glass E software.

On the PC that's running the Glass E software, start the software. You should see the following screen:
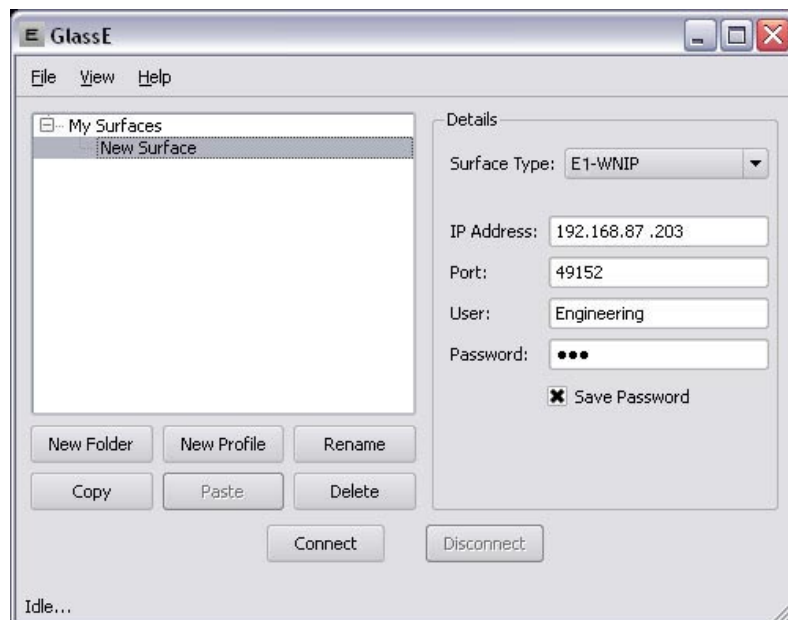
Select the Surface Type, enter the surface's IP address, and enter the Port you previously set up at the E-1. Then enter the user name and password that corresponds to the user type you want to operate the surface as, and you should then see screens similar to following two screens (shown for E-6 surface) on the PC running Glass E:

The first screen is a duplicate of the surface's GUI as it appears on the surface's VGA screen. All controls and functions of the GUI that have been described in chapters 2 and 3 of this manual work the same on this Glass E screen.

The second screen is a replication of the actual surface panels, and is operated in much the same fashion as the actual physical controls in the surface.
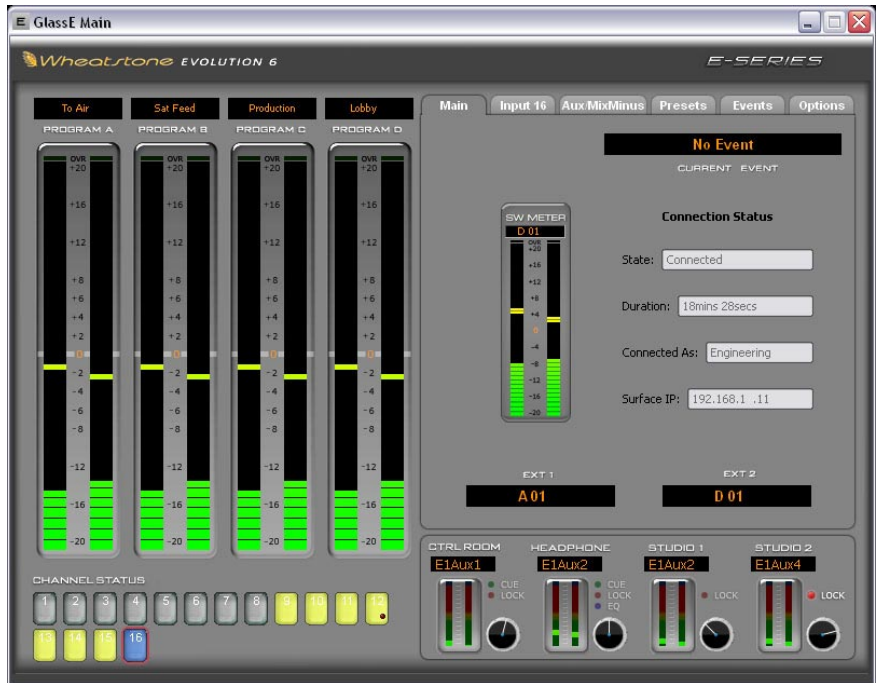
Meter Labels
Click label windows to rename

Function Tabs

Program meters

Functions display:
Clock, timer, current event, and switched meter

Click on EXT windows to choose source

Channel Select / Status Buttons

Monitor Controls

Access Authorization

Pressing fader's A/B switch automatically opens the *Input* Tab

Click here to change the source

Meter labels click to rename

A typical Input Tab

Functions display: Source and Fader Mode

Drag PAN slider or use Pan Pot

Button Bar

CHANNEL STATUS buttons show ON/OFF.

Use "Monitor Config" in the OPTIONS tab to lock monitor levels feeding amplifiers.

Separate password protected login for engineers, jocks, interns.

MUTE labels let you see when speakers are muted.

Events Manager tab — "Events" are snap-
shots of the entire control surface.
All faders, switches, sources, etc. are stored
and recalled.

Wheatstone EVOLUTION 1   **E-SERIES**

| PGM A | PGM B | PGM C | PGM D |

| Main | Input 2 | Events | Options |

CURRENT EVENT   **Daytime**   ◄— Last event taken

EVENT RECALL   ◄— Event Recall

ARM   Morning Show   To recall an event:
             Afternoon Drive   • click on event name
UNDO   Overnight   • click ARM
             Daytime   • click TAKE
                                                                  • click UNDO to go back
TAKE

EVENT EDITOR   ◄— Event Editor

NEW   Morning Show   This section lets you manage:
             Afternoon Drive   NEW—Save current surface state to a new event.
SAVE TO   Overnight   SAVE TO—Lets you save current surface state to an
             Daytime   existing event.
RENAME   RENAME—3 guesses? Just click on the event name
                                                                  and the virtual keyboard opens up.
DELETE   DELETE—Just click on the event name, click
                                                                  DELETE and confirm.

CTRL ROOM   HEADPHONE   STUDIO
E1PgmA   E1PgmA   E1PgmB
        LOCK   LOCK   LOCK

USER: Engineering

Options Manager tab — Provides access to a whole host of system options. Some are self explanatory, but see the Options Details section for details.

Choose fader sources

Press A/B on a fader to open main
INPUT screen

CH 1 Input Signals ✕

No Source
⊟— Tier 2
— 🟢 Mic 1
— Mic 2
— Mic 3
— Mic 4
— Fake Air
— CD
— DAT
— ISDN
— Caller 1
— Caller 2
— Network
— Server
— NewsRoom
— Effects
— Sat 1
— Sat 2
⊟— SURF1

Use the Button Bar to navigate
various input screens

| Main | Input 2 | Events | Options |

SOURCE

CD 1

FADER MODE

STEREO MONO LEFT RIGHT

PAN

L ◻ R

Source VDIP Load Save

Wheatstone EVOLUTION 1   E-SERIES

| PGM A | PGM B | PGM C | PGM D |
| PROGRAM A | PROGRAM B | PROGRAM C | PROGRAM D |

| Main | Input 2 | Events | Options |

SOURCE

CD 1

FADER MODE

STEREO MONO LEFT RIGHT

PAN

L ◻ R

Source VDIP Load Save

CTRL ROOM HEADPHONE STUDIO
E1PgmA E1PgmA E1PgmB
● LOCK ● LOCK ● LOCK

USER: Engineering

VDIP

| Main | Input 2 | Events | Options |

USE DEFAULTS: NO   LOAD: DEFAULT SIGNAL   SIGNAL: Mic 1

☐ PFL/CUE Dropout   ☐ Timer Restart   ☐ Machine Start Pulsed
☐ EFS   ☐ Fader Cue   ☐ Remote Ready
☐ PGM D Pre Fader   ☐ PGM D Pre On

STUDIO MUTES
☐ 1   ☐ 2   ☐ HP   ☑ CR   ☑ Cue

STUDIO TALLIES
☐ 1   ☐ 2   ☐ 3   ☑ 4

BUS MINUS DIRECT OUT
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6
☐ 7   ☐ 8   ☐ 9   ☐ 10 ☐ 11 ☐ 12   CLEAR
☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18
☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24   SET ALL

BUS MINUS SOURCE
E1PgmA ▾

RESET   APPLY

Source VDIP Load Save

Preset Load

PRESET TYPE All ▾

Remote
Left Only
Right Only

CANCEL   LOAD

Save

SAVE TO   TYPE All ▾

CHANNEL   Remote
              Left only
SOURCE   Right only

EVENT

PRESET

NEW PRST

SAVE ACTION

None

CANCEL   SAVE

E-1 GUI Input Tab Screens

E-1 GUI Options Tab Screens