
DIMENSION ONE

Television Digital Control Surface

TECHNICAL GUIDE

 *Wheatstone Corporation*

600 Industrial Drive, New Bern, North Carolina, USA 28562



General Information

Introduction

DIMENSION ONE continues Wheatstone's tradition of building the finest audio tools for television. With an extensive feature set in a very compact frame, you will achieve audibly superior results, whether broadcasting live or in a production environment.

The Wheatstone DIMENSION ONE Digital Television Audio Control Surface is fully loaded with all the functions and control capability needed by most television broadcast facilities: two 5.1 digital surround plus two stereo masters, a host of mix-minus clean feed outputs, individual channel bus-minus outputs, 6-band digital equalization, digital dynamic processing, and integrated routing that can access literally thousands of sources and feed thousands of destinations. The control surface uses motorized faders. The surface is layered, so that each fader controls two sources, each of which can be mono, stereo, or full 5.1. Faders can be "paged" together or separately. Each fader also has a "spill" function, which allows its individual channels to spill out onto six separate faders (for 5.1 sources). LED displays always indicate a fader's current source to eliminate operator confusion. The DIMENSION ONE gives your operators the added convenience of sixteen stereo subgroups, eight stereo auxiliary buses, four additional DCM/MUTE busses, and a full event/memory front panel storage and recall system that doesn't require an external computer to operate. DIMENSION ONE features Automatic Mic Mixing, which automatically optimizes the levels of several microphones during dialogue, and Audio-Follow-Video (AFV), which allows the control surface to automatically control input channels based on the video source currently being taken. News and sports coverage just became more effortless than ever. The control surface even has programmable talkback buttons.

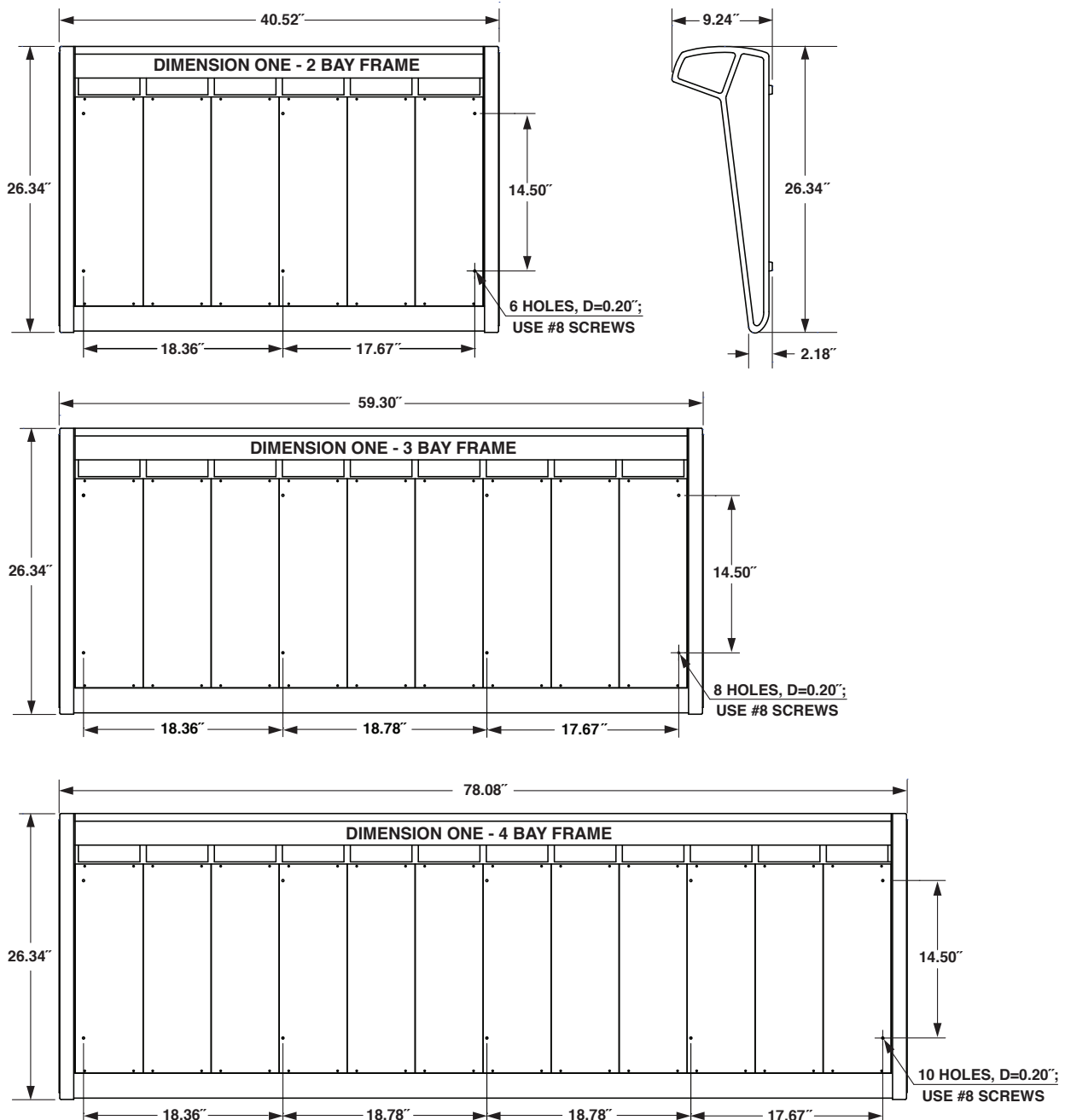
Designed to integrate flawlessly with the Wheatstone BRIDGE digital audio network router, the DIMENSION ONE control surface allows you to easily create large or small platform-based systems that are exceptionally user-friendly and flexible. Wheatstone BRIDGE network cages house all I/O ports and engine cards, and may be wired in tandem within a single equipment room or interconnected to separate remote locations by means of fiber-optic or CAT-5 cables to provide single wire studio integration schemes.

Once configured, the system operates entirely independently of external computers. Configuration itself is intuitive and carried out onsite by means of user-friendly graphic interfaces provided by Wheatstone desktop software. The DIMENSION ONE system also takes full advantage of Wheatstone's exclusive VDip configuration software, so that studio functions (like mutes, fader and timer starts, tally, etc.) are easily accomplished right at your desktop. Once completed, all settings are retained in non-volatile storage, allowing the entire system to run independently. Ethernet protocol is built in, providing interface with automation, scheduling, and hardware controllers as you require.

Control Surface Placement

The DIMENSION ONE digital audio control surface is designed for countertop mounting. Although the rubber feet on the bottom keep the surface from being easily moved when simply placed on the counter, holes have been provided so that screws may be used to mount the surface securely to the countertop. Carefully remove the appropriate panels from the frame, screw the mainframe to the counter top, and reinstall the removed panels. The three available frame sizes dimensions are shown in the drawings below.

Do not connect the Dimension One control surface to its power supply (and do not connect the power supply to the AC power line) until instructed to do so.



I/O Connections

All user wiring to and from the DIMENSION ONE control surface is made via connectors located on the control surface's rear panel. There are two RJ-45 connectors for main and failsafe ethernet connections. CAT 5 or multi-mode optical FIBER connections are made via RJ-45 or LC type optical connectors. Two 5-pin male connectors are for power supply connections. VGA connections are made via the female DB-15 connector. For all wiring pinout connections refer to Chapter 6. The photo below shows connector locations.

NOTE: Keyboard, VGA, and COM connectors for factory use only.



Input Panel (ISS-DimOne)

Controls and Functions

Each input panel of the DIMENSION ONE digital audio control surface has four identical strips representing four input channels.

Input Sources

Each input panel controls four sources. By turning input knobs, called X Controllers, the available inputs are displayed in the 8-character SOURCE display. When the desired input source is scrolled into the SOURCE window, pushing the SOURCE knob will take that source to the input of the channel.



Sources may be mapped into the A or B button. Scroll the SOURCE knob until the desired source appears in the SOURCE window, then press and hold the A or B button until the switch's LED lights. Once loaded, this source can be connected at any time by pressing the A or B button.

Gain Control

The GAIN level control controls mic or line gain for the selected input source. If the channel's SET button is pressed, the relative gain setting can be read from the input fader's LCD screen (see page 2-5).

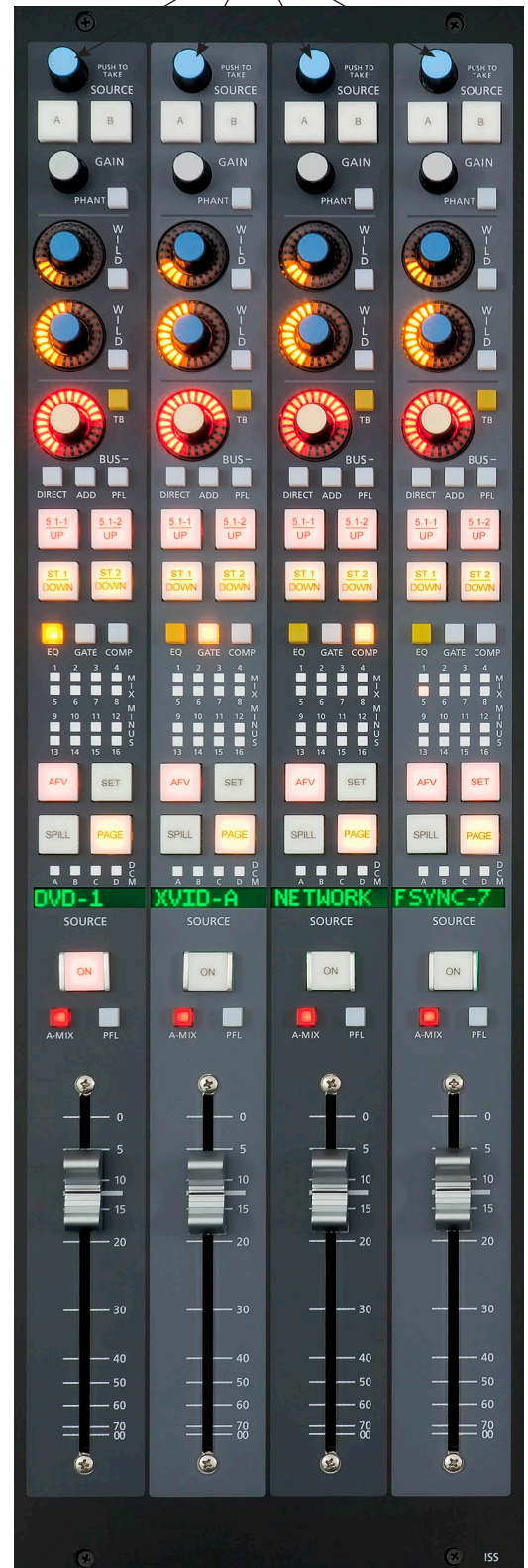


NOTE: Gain settings are NOT saved with Events. This is to prevent accidental changes in multi surface systems.

Phantom Power

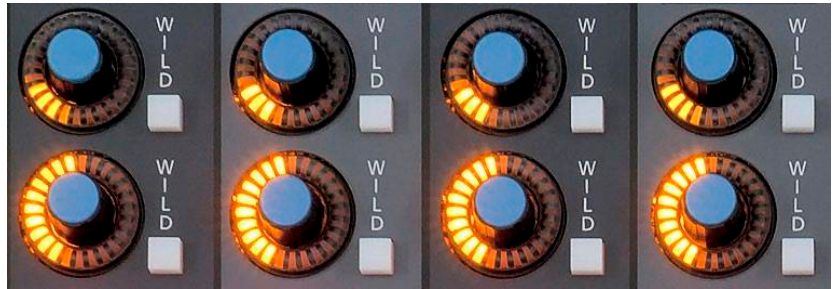
The PHANT On/Off switch applies phantom voltage to any selected microphone. The phantom power attribute stays ON even when the microphone is not selected on the control surface.

X Controllers



WILD

Each Input channel strip has two WILD encoders/switches. Each bank of these “wild card” controls may be mapped to control almost any input channel parameter located in the central control section. For instance, you could map the top bank of WILD controls to be Aux Send 1. Then map the lower bank to be DELAY.



WILD Encoder - The WILD encoder’s behavior will change depending on which function is mapped to it. Usually the encoder acts as a level control, turning full clockwise is maximum. For Panning or Blend the control defaults to center. Double tapping the control will reset it to its nominal position for some selected parameters.

WILD Switch - Each WILD encoder is paired with a switch located just to the bottom right. The switch function depends on which parameter (Aux Send, Blend, etc.) has been mapped to the encoder. Typically the switch acts as an ON/OFF for the function.

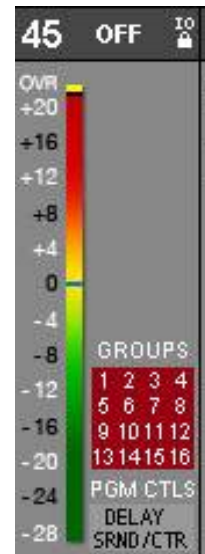
Mapping WILD Functions

To map a control to a WILD encoder bank do the following:

- Press and hold any WILD encoder until it lights up
- Tap the knob of the function you wish to map to all the WILD encoders in that bank. For example, the AUX 1 knob located on the DCM-DimOne panel.
- Press the flashing WILD switch next to the WILD knob you lit up in step one.



Use the PGM CTLS display switch located midway on the DCM-DimOne panel to show what is programmed to the WILD encoders. Look in the lower right corner of any input fader LCD monitor to see this.



Mode Selector Indicator

MODE selection switches in the EFS-DimOne panel (see Chapter 3) enable input channels to operate in Mono, Left only, Right only, Blend, and Stereo. The switch lights up to indicate the selected mode. **This feature is activated for a given channel by pressing the channel's SET button** (see page 2-5).

Pan/Balance Knob



EFS-DimOne Panel

The LT/RT knob (5.1 SURR section in the EFS-DimOne panel) acts as a panpot in MONO, LEFT only and RIGHT only modes, and as a balance control in STEREO mode. In BLEND, both the left and right input signals are sent to both the left and right sides of assigned stereo destinations, with the LT/RT knob acting as a mix control between the left and right inputs. **Once again, this feature is activated for a given channel by pressing the channel's SET button.** To easily set the PAN to center, you can press the control twice in rapid succession, like double-clicking a mouse button.



EFS-DimOne Panel

Bus Minus (BUS-)

Each input channel can generate its own independent mix-minus output, called BUS MINUS (BUS-); thus each anchor, each announcer, each host, each guest can have a dedicated mix-minus feed.



Start by assigning any desired input channels to the Bus Minus bus. This is accomplished by pressing the ADD switch, which places a summed signal of those input channels onto a special dedicated mix bus. This bus now becomes available to other input channels for use in their own Bus Minus outputs. Each channel's input signal is omitted from the MIX at it's own direct output. A BUS- encoder controls the level for each of the individual IFB channel/direct outputs. A TB switch lets the control surface operator talk back to that individual IFB/direct output, allowing communications between the operator and the talent receiving that mix. A PFL switch allows the operator to monitor the individual channel's Bus minus output. Use the DIRECT switch to convert the Bus Minus output into a Direct post fader/EQ output. The Direct output may be routed to any physical analog, digital, or MADI output. Press the input fader channel's SET button, then use the DESTINATION knob of the SYSTEM ROUTER section on the EFS-DimOne panel to select a destination. Press TAKE next to the DESTINATION knob to complete the route.



EFS-DimOne Panel

Dynamics and EQ

DYNAMICS (GATE and COMP) and EQ buttons allow dynamics and EQ functions which have been set for that channel on the DCM-DimOne (Chapter 5) and EFS-DimOne (Chapter 3) control panels to be applied or not to the input channel. The buttons light up when input channel signal processing is active on the channel. Available Dynamics functions include compression, gating, and limiting. Available Equalizer functions include four band parametric EQ with high-pass and low-pass filters.



NOTE: Use the EQ and Dynamics controls on the EFS-DimOne panel to adjust these settings.

Main Bus Assign

Buttons 5.1-1, 5.1-2, ST1, and ST2 assign the input channel signal to the four main busses. The buttons light up to show which busses the input channel has been assigned to. As indicated on these buttons, non-5.1 signals assigned to a 5.1 bus are automixed up to 5.1, while 5.1 signals assigned to an ST bus are automixed down to stereo.



MIX MINUS Assign Displays

These 16 indicators show which mix-minus(es) the channel has been assigned to using control switches in the MIX-MINUS ASSIGN section of the EFS-DimOne panel (page 3-8). **The MXM Bus assigns are accessed by means of the channel SET button.**



AFV Button - Audio Follow Video

The AFV function allows an input channel to be automatically faded up and down when the input channel is turned ON/OFF either locally or from remote logic. The ramp time value is set globally for all faders by overpressing the DELAY knob. The ramp value is a relative setting of 0-31, with 0 being fastest and 31 being slowest. You can quickly hear the effect by manually turning an input channel ON/OFF, vary the ramp values and listen to the results.

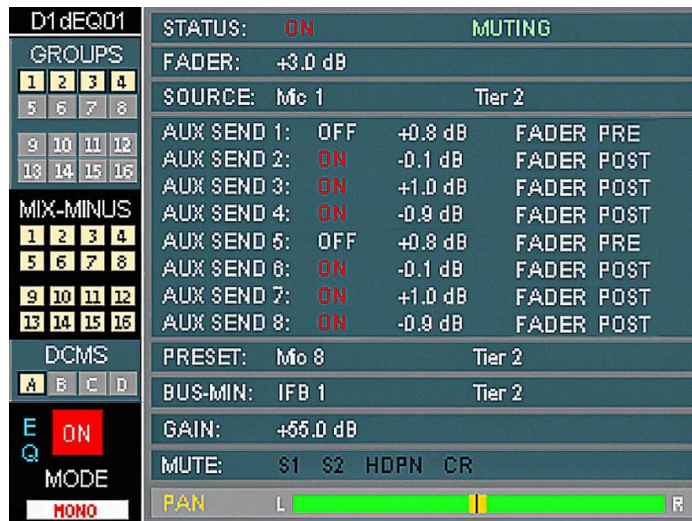
SPILL Button

The SPILL function lets the user spill a 5.1 surround source out to six individual faders for re-balancing purposes. SPILL only works when a six channel surround source is routed to a six channel surround input fader. The surround source will spill out to the left or right depending on its physical location. Once spilled you will have six individual faders each with a single surround component: LF, RF, C, SUB, LS, RS. Adjust each component level using the individual spilled faders. Press SPILL again to exit.

SET Button

This allows the operator to access various controls and displays on the EFS-DimOne and DCM-DimOne panels and apply them to the selected channel. SET can access GROUP, MIX-MINUS, DYNAMICS and EQ functions. To use, press the SET button and then make your appropriate

section settings in other areas of the control surface. Once a SET button has been pressed, various encoders and buttons light up, and all of the central section controls (EQ, MODE, DYNAMICS, etc.) display the current settings **for that input channel** until a different input SET button is pressed. Or if you don't use any SET-related controls for 20 seconds, the current SET selection will time out and the SET button will go off.



Page Button

The PAGE function allows each physical channel strip to control two strips worth of audio. This would allow a 16 fader control surface, for example, to control 32 channels of audio. Fader #1 would control audio channel 1 when the PAGE button is off, and would control audio channel 17 when the PAGE button is on. Likewise, faders 2-16 would control audio channels 2-16 when their respective PAGE button were off, and audio channels 18-32 with the PAGE button on. Each audio channel controlled by a fader is controllable separately via the PAGE button, yet both audio channels are available simultaneously. That is, if you have just set the level for channel 17 using fader 1 with the PAGE button on, turning the PAGE button off switches control to channel 1, but channel 17 continues to sound.

Above the DCM MASTER faders on the DCM-DimOne panel (see Chapter 5) there are PAGE A and PAGE B buttons which allow groups of input channels to be paged simultaneously.

DCM (Digital Control Master) Displays

Each channel can be assigned to any combination of the four DCM masters (DCM-DimOne panel). The assigned setting is displayed in the DCMS ABCD display group. Any channel that is assigned to a DCM will have its level controlled in a subgroup manner, much like a VCA in an analog control surface. For example, all announcer voices could be on DCM A, all remotes could be assigned to DCM B, and commercial source material could be on DCM C. The channels can then be easily adjusted in groups by means of faders on the DCM-DimOne panel. Furthermore, these DCMs



may be used as group mutes, to cut out or in an entire bank of faders by simply toggling the appropriate MUTE switch on the DCM-DimOne panel.

Channels are assigned to these DCMs in the following manner: press the channel SET button on the input fader section and then press the desired DCM ASSIGN button, located in the center of the EFS-DimOne panel.

When an input is muted by a DCM MASTER, it is as if the input fader strip's ON/OFF button was turned OFF. Any Studio muting and ON AIR Tally logic is turned off and MIX MINUS feeds are turned off.

Source Display

The currently selected source name shows on the alphanumeric display above the ON switch. This name is the 8-character name as defined in the Wheatstone Bridge Router configuration.

Channel ON Switches

The CHANNEL ON switches turn the channel signal ON and OFF and fires the channel ON (START)/OFF (STOP) logic. The switch LED lights to indicate the channel is ON.

A-MIX - Auto-Mix

Auto-Mix Overview

The DIMENSION ONE has an Auto-Mix control bus which any input fader may join. The basic idea of automixing is to automatically ride multiple open mic channels' gates using a host mic's level as the control. For example, if you have one host mic and four guest mics, you might set it up so the A-MIX switch is pressed on all four guest mics and you overpress the A-MIX switch on the HOST mic (LED is brighter in HOST mode).

Now when the host speaks the four guests' levels will duck. You can tailor the effect by adjusting each mic's GATE THRESHOLD (see DCM-DimOne panel).

Operation

Each input fader may be added to the Auto-Mix control bus by lighting the A-MIX switch. A long overpress of the A-MIX switch will cause the channel to become the HOST or master controller of the A-MIX bus.

PFL - Pre Fade Listen

This switch lets the control surface operator monitor the channel's pre-fader signal.

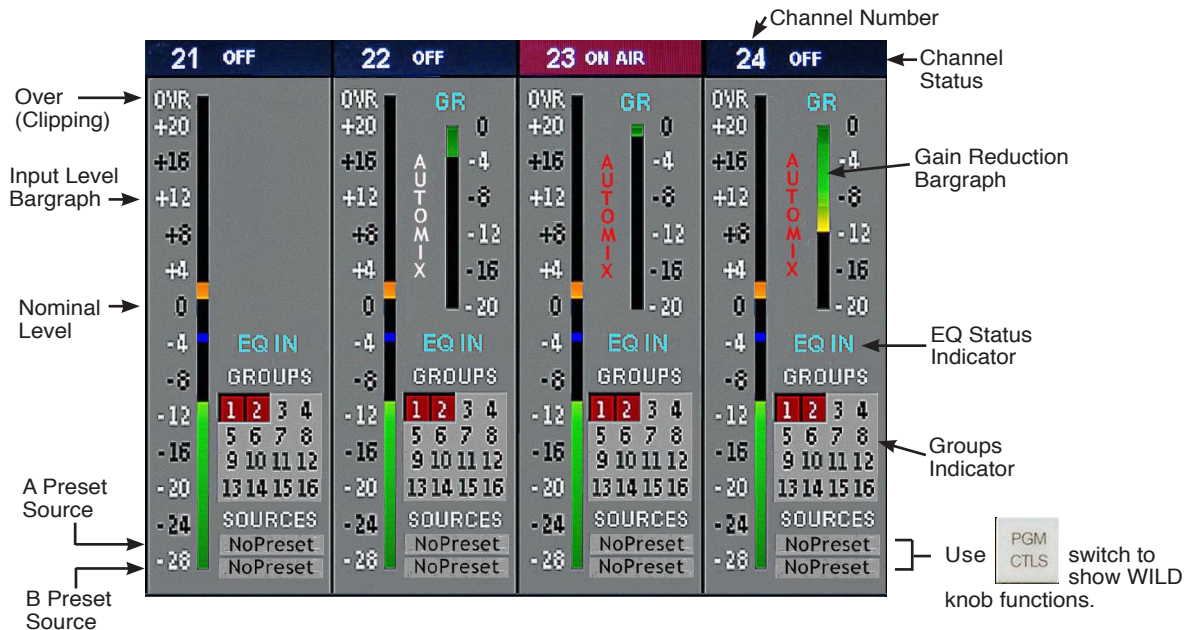
Fader

Channel output level is set by a touch sensitive long-throw motorized fader for automated level control.



LCD Display

Each input section has an associated LCD display located above the input section in the control surface meterbridge. This display shows input level, selected source, preset source, channel number, channel status, gain reduction, and other information.



Input Level

The pre-fader level of the input signal is shown by the large vertical bargraph on the display. The level is indicated in DB on a calibrated scale beside the bargraph. If the channel is stereo, the bargraph shows the loudest of the left and right signals. The bargraph is colored, with green indicating lower levels and red indicating high levels. The nominal level position is in the middle of the range at the "0" scale marking, and shows as a thin blue band in the bargraph. The bargraph itself consists of a moving "DOT" over a solid "COLUMN" where the "DOT" indicates the peak value of the signal, and the "COLUMN" indicates the average value. On the DIMENSION ONE control surface the average value column has been set to VU timing characteristics. In addition, a bright yellow rectangle will light at the top of the column if digital "OVER" or clipping is detected.

Nominal Level 0dB = +4dBu analog and -20dBFS digital.

Preset Sources

The currently loaded A and B source names show on the LCD display. These 8-character names are defined in the Wheatstone Bridge Router.

TIP:

Use PFL to see both left and right channels of a stereo signal in the PFL meter.

PFL meter is next to the STEREO 1 and STEREO 2 meters.

Channel Status

Various indicators on the LCD display will show status information for the associated channel. Above the level bargraph the words “ON,” “OFF,” “ON AIR,” or “MUTE” will appear as the channel status changes. “MUTE” indicates that the channel is turned ON and has a mute set. “ON AIR” indicates that the channel is ON and the fader is up. The letters “EQ” will show in the display if equalizer functions are active for the channel, and a smaller bargraph indicating gain reduction will appear if signal dynamics functions (compression, limiting) are engaged.

Channel Number

A large white number shows above the level bargraph indicating the channel number.

Control Panel (EFS-DimOne)

Controls and Functions

The DIMENSION ONE digital audio control surface is equipped with one CONTROL panel. This panel contains MONITOR, BUS ASSIGN, PFL, TALKBACK, EQ, 5,1 SURROUND, MODE, AUX/MXM MASTER OUTPUTS, MXM ASSIGN, SYSTEM ROUTER, EVENT, SWITCHED METERS, COPY, and TEST TONES controller sections.

Monitors

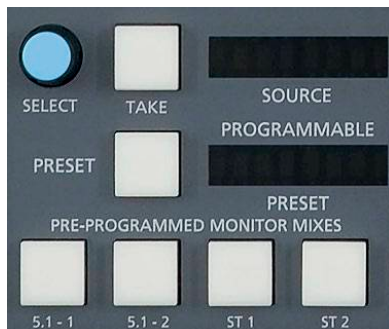
There are four monitor outputs available: CONTROLROOM, STUDIO 1, STUDIO 2, and HEADPHONE.

Each monitor has a LEVEL control, a SET button, a DIM switch, a TB button (CR monitor does not have a TB button), and a MIX display that is located on the bottom section of the EFS-DimOne panel.



The CR monitor section also contains a mode indicator and two speakers select buttons.

Monitor sources can be selected several ways:



- Four PRE-PROGRAMMED MONITOR MIX switches (5.1-1, 5.1-2, ST1 and ST2) allow direct access to the main mixes most frequently monitored.

- Sources can be randomly selected with the SELECT knob and its attendant SOURCE display and TAKE button.



• A source can also be loaded as a monitor preset by first selecting it with the SELECT knob and the SOURCE display, and then holding the PRESET button down until the source shows in the PROGRAMMABLE PRESET display. That source can then be monitored by pressing the PRESET button.

To select a source for a monitor by one of the above methods, first press the SET button next to the knob for the desired monitor.

The knob controls the level of the monitor signal.

STEREO 1	STEREO 2	PFL	CONFIDENCE FEED STATUS	
OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	CF 1:	MXM 1 NoDest
			CF 2:	NoSource NoDest
			CF 3:	NoSource NoDest
			CF 4:	NoSource NoDest
			CF 5:	MXM 5 NoDest
			CF 6:	MXM 6 NoDest
			CF 7:	MXM 7 NoDest
			CF 8:	NoSource NoDest
			CF 9:	NoSource NoDest
			CF 10:	MXM 10 NoDest
			CF 11:	MXM 11 NoDest
			CF 12:	MXM 12 NoDest
			CF 13:	NoSource NoDest
			CF 14:	NoSource NoDest
			CF 15:	NoSource NoDest
			CF 16:	MXM 16 NoDest

Control Room Section

In a typical television application the control surface is located in the audio control room. Speakers in the control room allow the control surface operator to listen to the various control surface bus outputs to be assured that the control surface is performing as desired. These speakers are fed by a stereo or 5.1 signal routed from the control surface's CONTROL output. In addition to the control room output, the operator may also desire to listen to specific isolated faders via the external cue speaker.

CR SET BUTTON - lets the operator select the source to be listened to in the control room speakers.

CR DISPLAY - the eight character display shows the source that is selected for monitoring in the control room.

CR LEVEL CONTROL - determines the overall loudness of the signal being monitored as it appears in the control room speakers.

DIM BUTTON - lets the operator "dim" the control room speakers (drop in level). Actual DIM level is set by the DIM encoder at the top of this panel.

MODE INDICATOR - a set of five LEDs indicates which mode, LEFT, RIGHT, MONO, STEREO, or SURROUND, the CR signal is operating in (see also page 3-5).

SPKR A, SPKR B - these two switches are used to determine which of two outputs will be fed by the CR signal. Each feed may have its mode programmed separately (see Selecting Output Mix Destinations on page 3-11).

Any open mics in the vicinity of the DIMENSION ONE are potential sources of audio feedback via the control room speakers. To avoid this a mic channel can be set to MUTE the control room speakers when on. See the sub-heading **Speaker Muting** on page 3-4.



Studio Section

In addition to the control room, there may be one or two studios in which one or more performers will be assembled, usually with microphones so that their voices can become part of the mix. Speakers may be provided in the studio to allow the talent to listen to the various control surface bus outputs at times that they are not actually on air. These speakers are fed from one of the control surface's stereo studio outputs.

As in the control room, the potential for feedback also exists in the studio. The talent microphones will usually provide a part of the signal that is going out over the air. If that signal is the one being monitored with the studio speakers, feedback will occur. To prevent this, the studio mic faders are usually set to MUTE the studio output in the configuration software to prevent the occurrence of feedback.

ST SET BUTTON - lets the operator select the source to be listened to in the studio.

ST DISPLAY - the eight character display shows the source that is selected for monitoring in the studio.

ST LEVEL CONTROL - determines the overall loudness of the signal being monitored as it appears in the studio speakers.

DIM BUTTON - lets the operator "dim" the studio speakers (drop in level). Actual DIM level is set by the DIM encoder at the top of this panel. Note the DIM function also affects the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is dimmed, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

TALKBACK (TB) BUTTON - there may be times when the control surface operator wants to talk to one of the talent in the studio. When the TB button in the studio monitor section is pressed, a predefined signal, usually the operator's mic, will "interrupt" the speaker feed that is normally heard in the studio.

If there is a live mic in the studio which has activated the mute feature, talkback will also be muted in the speakers.

On the top right corner of the EFS-DimOne control panel is the TB GAIN master level control that sets the talkback output and the level of the talkback interrupt signal. The normal studio feed, which is interrupted by the TB signal, will fall to a level set by the DIM control.

Speaker Muting

To activate studio speaker muting you must program the surface using the *Configure>VDip Settings* form located in the XPoint software. This is typically done at install time by the Engineering staff or a Wheatstone representative, and is detailed on the XPoint Software chapter of the Wheatstone BRIDGE Generation Digital Audio Network System Technical Manual.

Each MIC input signal may be individually configured to mute any or all Studio or Headphone outputs when the fader is ON AIR.



TIP:

PFL DEFEAT

Press the STUDIO output SET button, then light the PFL DEFEAT switch at the top of the same panel to stop PFL from going to STUDIO speakers.

MUTE DEFEAT

Press the STUDIO output SET button, then light MUTE DEFEAT button at the top of the same panel to cancel STUDIO speaker muting.

Headphone Section

The HEADPHONE output may be used to feed the video CR or third Studio.

HDPN SET BUTTON - lets the operator select the source to be listened to in the headphone.

HDPN DISPLAY - the eight character display shows the source that is selected for monitoring in the headphone.

HEADPHONE LEVEL CONTROL - determines the overall loudness of the headphone output signal.

DIM BUTTON - lets the operator “dim” the headphone output signal (drop in level). Actual DIM level is set by the DIM encoder at the top of this panel.

TALKBACK (TB) BUTTON - takes the assigned TB signal and feeds it to the headphone output, allowing direct communication between the operator and talent. The normal headphone feed falls to a level set by the DIM control.

Monitor outputs are normally subject to the control surface’s muting and solo/cue interrupt circuits; however, these may be defeated by front panel switching (DEFEAT button - see page 3-6).



Mode Control and Indicators

These switches and LEDs give local visual control and indication of the selected mode for the various monitors (stereo, mono, left only, right only or surround). Note that the mode status of the CR monitor can always be seen on its mode indicator LEDs next to the CR level control.

Mode may be changed in the following way: press the SET button for the desired monitor and select the allowed **MODE** button in the center of the panel. Similarly, the mode of an input source is selected by these controls by first pressing the SET button for the desired input channel.

Note that **SURR** mode requires that the CR be configured for 6 channel operation in software. Not all systems support this mode. Consult factory for details.



Bus Assign Section

All bus assignment is accomplished through a bank of **BUS ASSIGN** switches on the EFS-DimOne panel, consisting of eight group assign switches and four master assign switches. The switches illuminate to indicate the assign status of the input channel or group whose SET switch is currently active. Indicator windows on the group panel show the assign status for each individual source.

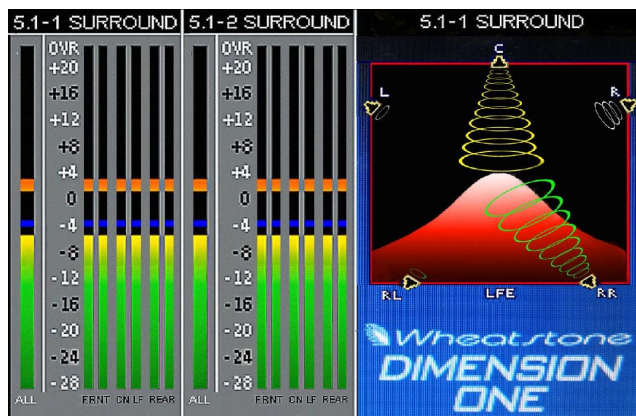


Bus assignment may be made in any combination, and is accomplished by first pressing the SET button on the desired input channel (ISS-DimOne panel) or group (MFS-DimOne) panel. The switches in the EFS-DimOne panel **BUS ASSIGN** section illuminate to show the source’s current bus assignment. Press required switches to create the desired set of bus assigns. The local indicators on the ISS-DimOne or MFS-DimOne panel will change to reflect the new bus assignment.

Surround/PAN System

NOTE: The 5.1 Surround panning system is used only for those signal paths assigned to a 5.1 destination.

PROGRAMMING A CHANNEL FOR SURROUND SOUND: Select the channel you wish to program by pressing its SET button. Assign it to the 5.1 destination by means of the BUS ASSIGN switchbank. The 5.1 SURROUND section will indicate the current settings of the encoder LT/RT, FRNT/REAR, SUR/CTR, and CTR/LFE knobs. The meterbridge display will also show a multi-color graphic representation of this system. The system can generate 5.1 signals from MONO or STEREO sources, and can modify the 5.1 signal of existing 5.1 input sources. Double-clicking any of the encoders will return that parameter to its default setting (for example, LT/RT returns to center).



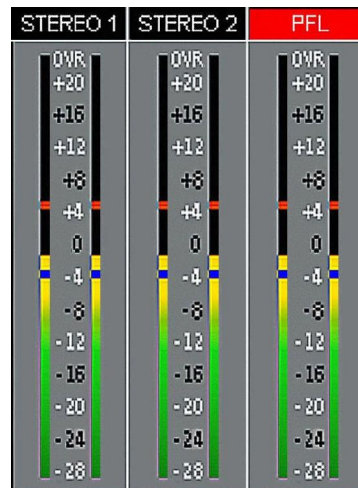
Mute/Dim/PFL Section

The PFL master level control and DEFEAT switch are located on the top section of the EFS-DimOne panel. The PFL signal is pre-fader, and is normally used to check signals. When a channel is CUED, its pre-fader signal will appear in the cue speaker, and the switched meter array in the master LCD display will show the level of the pre-fader signal.

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

Similar to the control room speakers, the cue speaker also has the potential for feedback and should be muted (using the configuration software—VDIP menu) whenever the control room speakers are. The PFL DEFEAT switch allows for temporarily overriding, or cancelling, the mute function.

The DIM master level control and defeat switch are also located on the top of the EFS-DimOne panel. The DIM level control sets the amount of attenuation applied to a monitor signal (such as control room output) when its DIM switch is engaged, and also sets the level of the normal feed when it is interrupted by the TB signal. The dim DEFEAT switch allows for temporarily overriding the attenuation to bring all DIMmed signals back to their normal level.



NOTE: PFL and CR MUTE is only required when a MIC is open in the Control Room.

CLEAR PFL

When any PFL button on the control surface is pressed, its light will be illuminated and should flash slowly. The PFL CLEAR button will also flash synchronously with any active PFL buttons. Any signal can be released from cue/solo by pressing its individual PFL button a second time. All PFL activated buttons can be cleared at once by pressing the PFL CLEAR button.



Switched Meters Section

The control surface also provides a switched meter.

To select a signal to meter, rotate the SELECT encoder. Available sources will be displayed in the eight character SWITCHED METERS display. When the desired signal is displayed, press the TAKE button. The switched meter array will then display the signal level. If, however, after a timeout period of 5 seconds, the TAKE button is not pressed, the array will revert back to its previous selected program.



Any time a channel PFL button is pressed, the PFL level will be temporarily shown in the switched meter display until the PFL button is deactivated.

Mode Select Section

You have already been introduced to the MODE switches earlier in this chapter, in the discussion of the monitor controls. Mode may also be set for input channels and output mixes.

To select a MODE, press the SET button of the desired channel or mix; the SET button will illuminate, and the current mode setting for that channel will be displayed on the MODE switches. MODE can be reconfigured by pressing any allowable button.

The mode selector switchbank (ST, LT, RT, MONO, BLEND, and SURR buttons) and LT/RT knob are located in the center of the Control panel. There are six available channel modes: STEREO, LEFT ONLY, RIGHT ONLY, MONO, BLEND, and SURROUND. When pressed, the switch will light up to indicate the selected mode.

The LT/RT knob acts as a panpot in MONO, LEFT ONLY and RIGHT ONLY modes, and as a balance control in STEREO mode. In BLEND mode, where both the left and right signals are sent to both the left and right sides of assigned stereo destinations, the LT/RT knob acts as a mix control between the left and right inputs. The LT/RT knob is only used with input channels, and has no effect when setting the mode of the monitor signals.



AUX/MXM Master Outputs

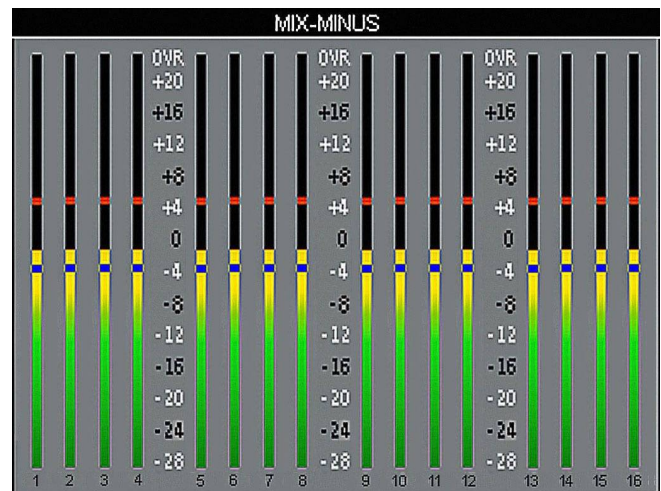
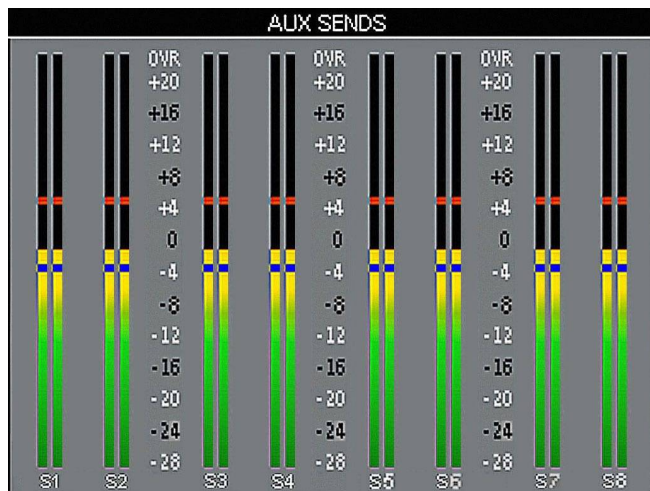
This section is used to control the master GAIN, PFL, TB, Mode selection, and DESTINATION routing (see Event Section) for the eight AUX SEND mixes and the sixteen MXM mixes.

It is comprised of a shared GAIN knob, TB button and PFL switch. Additionally, there is a bank of eight AUX MASTER buttons and a bank of sixteen MXM MASTER buttons.

To set a GAIN, press any of the eight AUX MASTER or sixteen MXM MASTER buttons and rotate the GAIN knob.

To set a PFL, again press any of the eight AUX MASTER or sixteen MXM MASTER buttons and then press the PFL button.

To interrupt a signal with the TB signal, press any of the eight AUX MASTER or sixteen MXM MASTER buttons and then press the TB button.



MIX-MINUS Assign

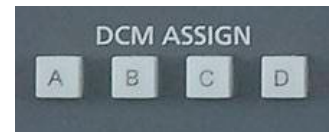
These buttons are used to control the makeup of the sixteen MIX-MINUS buses. Press the SET button on any input. If that input is assigned to feed an MXM bus, the corresponding MIX-MINUS ASSIGN switch will be lit. Pressing a MIX-MINUS ASSIGN switch will toggle that input's signal into or out of the corresponding MXM bus. Indicator windows on the input panels show the assign status for each individual source.

By default, the surface is configured so that when the MIX MINUS ASSIGN LED is lit, the audio from that fader is **removed** from the MIX MINUS bus output. This makes it easy to see which input fader is NOT on a given MIX MINUS output.



DCM Assign

To assign a DCM to an input, submix or master, place the input, submix or master channel in SET mode and press any combination of the DCM ASSIGN buttons. The appropriate DCMS display cluster on the inputs (ISS-DimOne panel), or submixes or masters (MFS-DimOne panel), will be illuminated, as well as the assign buttons.



Copy Section

This system provides a convenient means of copying input channel settings and duplicating them to other input channels. To go into COPY MODE, press the COPY button. It will flash. Choose the desired channel to be copied by pressing its SET button (ISS-DimOne panel). The SET button will then flash in concert with the COPY button and the PASTE and PASTE ALL buttons will light. To go into PASTE mode, press the PASTE button. It will flash, and the COPY and PASTE ALL buttons will go out. Then press the SET button of the target module you wish to copy to. It will begin to flash in concert with the PASTE button, and the TAKE button will light. To accomplish the copy, press the TAKE button.



Note, the copy function does not copy source assigns, destinations, presets, or input gain.

The UNDO button is used to undo a TAKE copy. Simply press UNDO and then TAKE to return the modified channel to its pre-TAKE status. There is only one level of UNDO. If you do a copy operation, then do another copy operation, then press UNDO to go back to the status before the last copy, pressing UNDO again will have no effect.

Copy Multiples

It is possible to take a bank of channels and duplicate it to another channel bank of equal number. Press the COPY button, then press the desired SET buttons on the source bank. The COPY button and the source bank SET buttons will flash in concert. Then press the PASTE button, which will begin flashing; press the desired target channel SET buttons, which will flash in concert with the PASTE button. To execute, press the TAKE button.

This function can be used to copy the settings from any number of channels to an equal size group of channels. The channels in each group do not have to be consecutive, and channels within a group can be a mixture from each PAGE if desired. There can even be overlap; for example, you can choose to copy from channels 1, 2, and 3 to channels 2, 4, and 5. After this copy, channels 1 and 3 would not have changed, channel 2 would be set as channel 1 had been, channel 4 would be set as channel 2 had been, and channel 5 would be set as channel 3 had been.

When selecting channels for the COPY and PASTE sets, the order in which you press the buttons matters. For example, if you selected, in order, channels 1, 2, 4 and 3 for COPY, and then selected, in order, channels 5, 7, 6, and 8 for PASTE, the end result would be that channel 5 would have channel 1 settings,

channel 6 would have channel 4 settings, channel 7 would have channel 2 settings, and channel 8 would have channel 3 settings. Not that this is something you would necessarily want to do, but that's what would happen. To reiterate, order matters when selecting the COPY and PASTE sets.

If the size of the COPY and PASTE groups are different, TAKE will not effect the change, except for the special case of Copy One and Paste Many, described next.

To Copy One and Paste Many

Press the COPY button, and then the desired source channel SET button; both will flash in concert. Then press the PASTE button and the target channel SET buttons, which will flash in concert with the PASTE button. To execute, press the TAKE button.



To Copy One To All

Press the COPY button, and then the desired source channel SET button; both will flash in concert. Then press PASTE ALL, which will commence flashing. To execute the global paste, press TAKE.

NOTE: If the TAKE button is not pressed within a timeout period of 10 seconds, the entire copy/paste operation will cancel out.

Test Tones Oscillator

The TEST TONES section, located on the top of the EFS-DimOne panel, provides adjustable frequency test signals, a pink noise source, and a stereo ID source (a 400Hz tone on the left channel, and a 1KHz tone on the right channel).

Operate as follows: The encoder knob operates as both a frequency knob and a level control knob. By pressing the FREQ button, the encoder will now adjust the oscillator frequency designated in the TESTTONES display. Its level can then be adjusted by pressing the LEVEL button and using the encoder to adjust the level as displayed in the TEST TONES display. If a pink noise is desired, press PINK button and adjust its level by pressing the LEVEL button. Using the same procedure with ST ID TONES button establishes a STEREO ID tone. The Test Tones destination is chosen by pressing the SET button at the desired destination location and then the ASSIGN button in the TEST TONES section. To use any of the test tones, press the ON button. When it is lit the selected test tone is available; when not lit the tones are off. Test Tones will interrupt audio on the output it is assigned to.



System Router Section

This section provides a means of selecting sources for input channels and destinations for output mixes.

Selecting Input Channel Sources

The operator designates the desired input channel by pressing its SET button in the Input section. Its current input source is shown in the SOURCE display and the location of that source shown in the LOCATION display (assuming that a location has been assigned - see the XPoint chapter of the Wheatstone BRIDGE manual for details). Input channel meterbridge LCD displays will mirror that same information. A different input source may be chosen by rotating the SOURCE knob. When displaying the current source the CLEAR button lights; when displaying any other source the TAKE button lights. When the desired source is shown in the SOURCE display, pressing the TAKE button will execute the take command on the downstroke, and the new input will be shown in the SOURCE display and in the meterbridge LCD display. This function operates the same as the SOURCE knob on the input panels. To remove the input source from the input channel and leave nothing connected, press the CLEAR button. The connection will be broken and the display will show “NO SOURCE.”



Selecting Output Mix Destinations

When a SET button on an output mix channel (i.e., any of the auxes, monitors, or MXM masters) is pressed, its most current destination will be shown in the DESTINATION display, and the location of that destination will be shown in the LOCATION display. A mix is capable of being sent to one or many outputs. To see all the destinations that the mix feeds, rotate the DESTINATION knob. If the mix feeds the displayed destination the CLEAR button will light; if the mix doesn't feed the displayed destination the TAKE button will light. You may also “dobby” the DESTINATION knob to step through all of the currently routed destinations.

EXAMPLE: An example might be a MXM feed routed to several listeners participating in the program, or an AUD bus routed to multiple recording devices.

TIP:

The CR monitor SPKR A and SPKR B buttons act as SET buttons to program the SPKR A and SPKR B destination(s) separately.

TIP:

DOBBY (pronounce dah-bee) - means to quickly press and release an encoder knob.

Changing Output Mix Destinations

Rotate the DESTINATION knob until the desired destination is shown in the DESTINATION display. If the operator wishes to add the destination shown, press the TAKE button to execute the command and the new destination will become the current destination, shown in available displays elsewhere on the control surface. Disallowed destinations (established in the configuration software) will not be shown.

Removing Output Mix Destinations

Press the mix channel's SET button, rotate the DESTINATION selector knob, and the TAKE and CLEAR buttons will indicate which destinations are currently being fed by the mix (see above). When the required destination to be deleted is shown in the DESTINATION display, press the CLEAR button.

X-Y SET Button

Pressing the X-Y SET button allows the source and destination controls to act as a standard X-Y type router controller for making connections between sources and destinations that are not associated with the control surface.



Event Controller Section

This section provides a means for storage and retrieval of control surface settings, and naming those settings as “events.” In this manner complete configuration and setting information that is used repeatedly (for example, morning show) can be saved and recalled. Up to 100 different events can be stored.

Storing an Event

When an event is stored, all of the control surface's current settings are saved and will be recalled when that event is executed through the TAKE command. To create a new event from current control surface settings, hit the NEW button, and then hit the SAVE button. To overwrite an existing event with the current settings, turn the PREVIEW SCROLL knob until the desired event is displayed in the PROGRAM/PREVIEW window, then quickly press MODIFY, then SAVE.



Taking an Event

Rotate the PREVIEW SCROLL encoder until the desired event is shown in the PROGRAM/PREVIEW display. To prevent accidental takes, the ARM button must be pressed to arm the function. The TAKE button will now flash indicating that the panel is ready to act on a take. Then press the TAKE button to execute the EVENT.

Undoing an Event

To recover from a premature or erroneous EVENT take, press the ARM and UNDO buttons. This will return the system to its status prior to the last take, with the last program event being once again the current program event, and the last preview event (the one just taken) becoming the preview event once again. There is only one level of undo. If undo has been done and a subsequent take has not been done, pressing the UNDO button again will do nothing.

Modifying the Currently Selected Event

It is presumed an event has already been executed on the control surface. Modifications to that event can be accomplished by simply adjusting the controls and switches as desired and then pressing the MODIFY button, then the SAVE button. In this way the modified event will overwrite the old event setting and be saved, with the same name, in its place.

Deleting an Event

Rotate the PREVIEW SCROLL encoder until the Event to be deleted is shown in the PROGRAM/PREVIEW display. Press the Modify button, then press the PREVIEW SCROLL knob; the display will ask “DELETE?” Press the TAKE button to delete the previously displayed Event. Do nothing and Delete mode will time out after approximately 7 seconds. *Deleted Events may NOT be restored.*



Previewing an Event

Rotate the PREVIEW SCROLL encoder and available EVENT names will be shown in the 8-character PROGRAM/PREVIEW display. When the desired event is shown in the display, press the ARM button, then press the PREVIEW button. This will cause the entire control surface to display all settings associated with that event, without disturbing the current operative event. The preview status will be indicated by illumination of the PREVIEW button and flashing of all source and destination displays, to remind the operator that these would be the intended settings when the change is made. Pressing the PREVIEW button a second time will cancel the preview. *It should be noted that no audio signals are changed in any way by the preview feature.*

Event Default Button

This control allows rapid access to a default or home control surface setting. Push it, and the TAKE button in the Preview section will flash. Hit the TAKE button and the default setting will be executed.

Establishing the Default Setting

This setting would normally be set only once. For example, it may be desirable to have all controls set to zero, or everything programmed to typical nominal settings. To establish the default setting, adjust all the control surface controls to their desired settings, press the MODIFY button and then the DEFAULT button. The default setting is stored.

Naming an Event

When events are saved, they receive a default event designation number. This way events can be saved quickly without having to name them. However, an event may be custom named when saved, or at a later time. To rename the displayed event,

press the ALPHA SCROLL knob. The CURSOR LT and CURSOR RT buttons will light and the cursor, indicated by a flashing character, will be at the beginning of the name. Also, the SAVE button will begin to flash. At any time you can use CURSOR LT and CURSOR RT to move to a character you want to change. Once the cursor is at the desired character, rotate the ALPHA SCROLL encoder until the desired new character is displayed. Once all desired characters have been changed, simply press SAVE to save your changes. The event is stored with the desired name. At any time you can cancel the name edit by pressing the ALPHA SCROLL knob. Also, if you stop making name changes but fail to press the SAVE button, the name edit process will automatically cancel after a delay of several seconds.



Control Modes

The DIMENSION ONE control surface is operated in one of three modes. In Administrator mode access is allowed to all surface functions. In User mode a limited set of user functions is allowed. The set of functions allowed in User mode is set independently for each console using the Bridge XPoint software (see the Bridge Router manual for details). The third mode, Guest, blocks out MXM level, MXM assign, Event takes, and visibility changes from being controlled by the surface.

To change the control mode, begin by pressing and holding the PREVIEW SCROLL knob until the display reads “Admin” and the TAKE button lights (if the surface is currently in Admin mode the ARM button will also light). Turn PREVIEW SCROLL until the desired new mode (Admin, User, or Guest) is showing in the display and press TAKE. Turn PREVIEW SCROLL again to select the first digit of the password. Default passwords, which may be changed in XPoint, are “1234” for Admin, “2222” for User, and “0000” for Guest. After dialing up the first character of the password, press TAKE. Then dial up the second digit. Continue this procedure until the four characters have been entered. Upon pressing TAKE after entering the fourth character, the display will read “Okay...” if you were successful and “Sorry...” if you were not. When finished, turn PREVIEW SCROLL until the display reads “<<Exit” and press TAKE to finish the mode select operation.

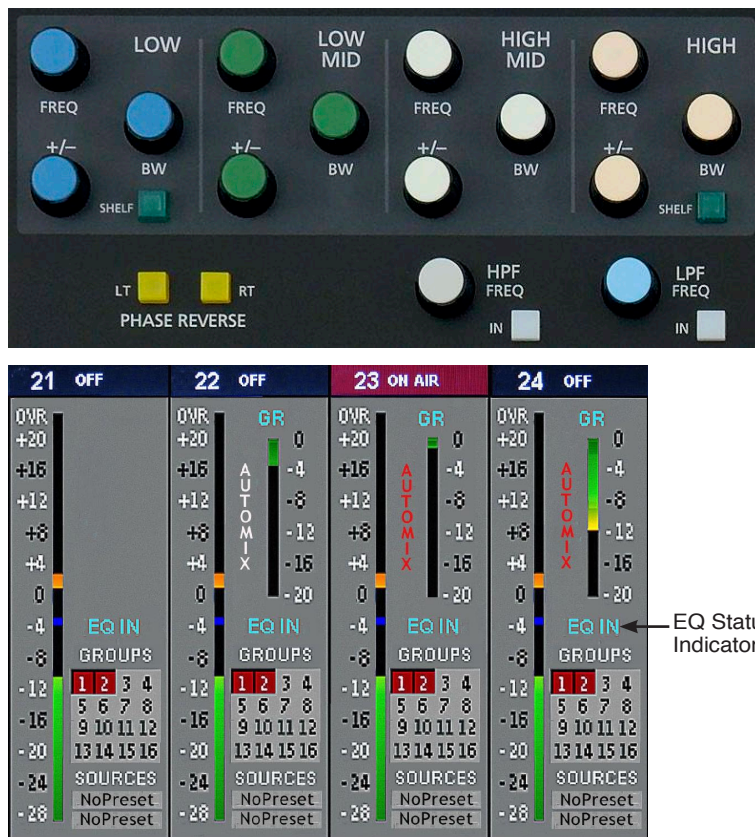
The ARM button lights as you select the mode that the surface is currently in. If you press TAKE when displaying the current mode, the display will switch to “Okay...” and you will not need to enter the password. If you stop partway through the procedure, the mode selection process will time out after about 15 seconds.

Once a given control mode is selected for a surface, that setting will persist through a power cycle or surface reset.

EQ Section

The EQ section consists of a bank of knobs and various associated switches. The EQ system consists of a four-band parametric EQ with low band and high band PEAK/SHELF switching, plus variable frequency high and low pass filters. As any of the controls are adjusted, a real time graphic display is presented on the LCD monitor panel showing the resulting frequency response curves.

To access EQ on individual input channels, press the appropriate channel's SET button and make the desired adjustments in the EQ Section. To actually place the adjusted EQ in the signal chain, press the EQ IN button. The input channel's EQ button will light, and its LCD display will show "EQ." Either the input channel EQ switch or the master EQ switch on the EFS-DimOne panel can be used to engage/disengage the EQ functions on a channel.



High-Pass Filter

This is a 24dB/octave variable high-pass filter with Butterworth characteristics, tunable between 16.1Hz and 500Hz, and with a separate in/out switch ("HPF" switch). The relatively high order of filter is necessary to allow definite and decisive removal of unwanted low-frequency artifacts (air-conditioning rumble, line hum, traffic or footstep impacts) with minimal effect on the required program.

Note: Butterworth Filters typically yield excellent flatness, no ripple in the pass band, and a rounded amplitude response near the cutoff frequency.

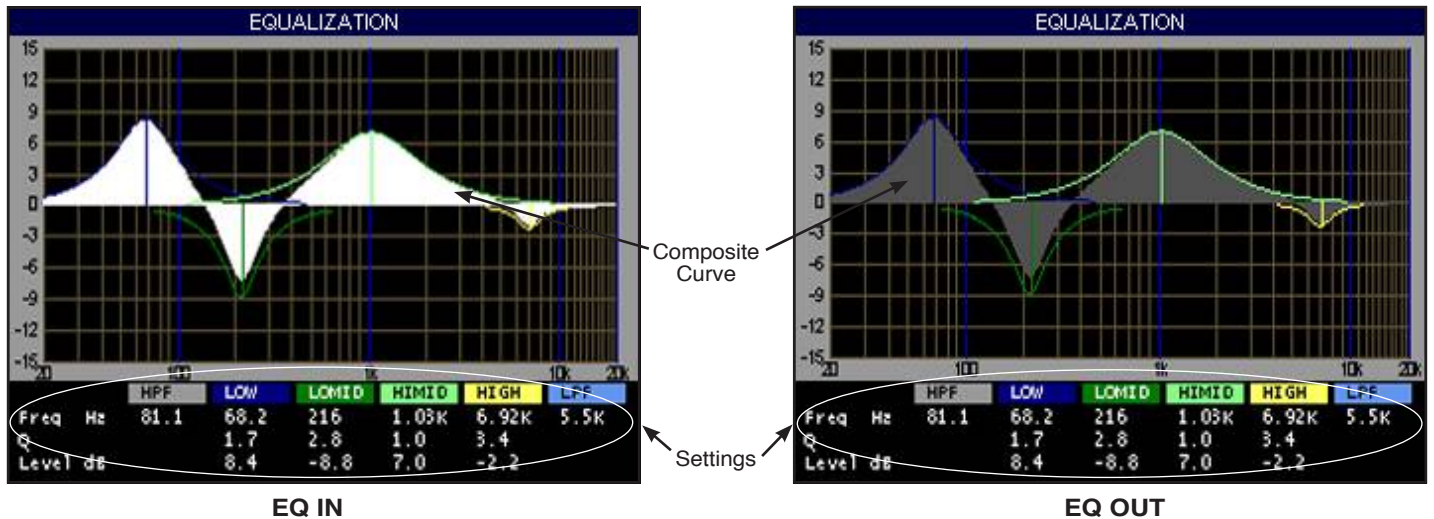
Low-Pass Filter

This is a 24dB/octave variable low-pass filter with Butterworth characteristics, tunable between 1KHz and 20.2KHz. This filter is used to remove unwanted high frequency artifacts (noise, squeaks, etc.) with minimal effect on the required program.

Equalizer

This consists of four bands of parametric control used for modifying the sonic qualities of a signal. Each band has +/-14dB of BOOST/CUT capabilities (+/- knob), sweepable center frequency over the range of 16.1Hz to 20.2kHz, and with a filter "Q" or sharpness [BW (Band Width) knob] sweepable between 0.3 and 5.0 octaves. The LOW and HIGH bands

also have a shelving function. The composite effect of any EQ adjustments, as well as text describing the equalizer settings, are shown on the LCD screen.



Phase

A pair of switches, one for left and one for right, are provided to cause the reversal of absolute phase of the signal path.

Master Panel (MFS-DimOne)

Controls and Functions

The DIMENSION ONE digital audio control surface is equipped with one MASTER panel. This panel houses four master program outputs and eight submixes (group outputs).

Master Program Outputs

Mix Destination 5.1 Surround

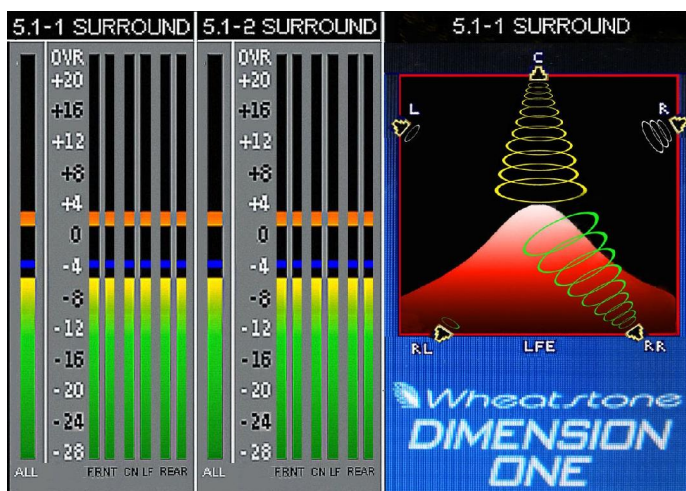
NOTE: There are four different mix destinations: 5.1-1 Surround, 5.1-2 Surround, Stereo 1 (ST 1), and Stereo 2 (ST 2). For descriptive purposes we will be discussing the controls for one section only, 5.1-1 Surround, with occasional references to other sections. Control descriptions for one section also apply to identical controls at the other three destinations on the MFS-DimOne panel.



EFS-DimOne Panel

Input channels are assigned to the 5.1-1 Surround master by means of BUS ASSIGN button “5.1-1” (BUS ASSIGN section on the EFS-DimOne panel). Mono input sources would pan between the left front and right front. Stereo inputs would route to left front/right front.

Mono and stereo inputs may be processed into 5.1-1 Surround signals by means of the 5.1-1 SURROUND section on the EFS-DimOne panel. 5.1-1 input sources would preferably route to the SURROUND output unmodified. Groups may also be routed to the masters (including the 5.1-1).



Master Mix Destinations

Output destinations are selected by pressing the SET button. The DESTINATION display (EFS-DimOne panel) will show the most *recent* output destination assigned. It should be noted, however, that a mix channel can go to multiple destinations, and for this reason the list of destinations that channel is assigned to is displayed in the LCD display when that channel's SET button is active. Up to four destinations will be shown. An ellipsis (...) is used to indicate if more than four destinations are assigned. If the mix is not assigned anywhere the display will show "NoDest."

STEREO 1	STEREO 2	PFL	CONFIDENCE FEED STATUS		
OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	OVR +20 +16 +12 +8 +4 0 -4 -8 -12 -16 -20 -24 -28	CF 1:	MXM 1	NoDest
			CF 2:	NoSource	NoDest
			CF 3:	NoSource	NoDest
			CF 4:	NoSource	NoDest
			CF 5:	MXM 5	NoDest
			CF 6:	MXM 6	NoDest
			CF 7:	MXM 7	NoDest
			CF 8:	NoSource	NoDest
			CF 9:	NoSource	NoDest
			CF 10:	MXM 10	NoDest
			CF 11:	MXM 11	NoDest
			CF 12:	MXM 12	NoDest
			CF 13:	NoSource	NoDest
			CF 14:	NoSource	NoDest
			CF 15:	NoSource	NoDest
			CF 16:	MXM 16	NoDest

As you rotate the DESTINATION knob in the EFS-DimOne panel the names of allowable destinations will appear in the DESTINATION display. If 5.1-1 is not currently routed to the displayed output, the TAKE button will be lit; if 5.1-1 is currently routed to the displayed output, the CLEAR button will be lit. Press the TAKE button when lit to add the currently displayed output as a 5.1-1 destination, or press the CLEAR button when lit to delete that output as a 5.1-1 destination. You can also "dobby" the DESTINATION knob to step through all of the currently routed destinations.

Destinations for the remaining master outputs are handled in a like manner.

TIP:

DOBBY (pronounce dah-bee) - means to quickly press and release an encoder knob.

Channel Master ON/OFF

The ON switch turns the channel signal ON; pressing it again turns the channel signal OFF. The switch LED lights to indicate the channel is ON.

EQ

This switch inserts EQ functions that have been preset by the operator in the EQ section of the EFS-DimOne panel. When any knob of the EQ section is rotated, the LCD displays a graphical representation of the EQ settings.



EFS-DimOne Panel



GATE

This switch inserts dynamic functions that have been preset by the operator in the DCM-DimOne panel. When any knob is rotated, the display automatically shows the proper setting units and parameters for the active knob. The display settings (and the settings themselves) change as the knob is rotated.

The dynamics settings are also shown graphically on the LCD screen.



COMP

This switch inserts compressor functions that have been preset by the operator in the DCM-DimOne panel. When any knob is rotated, the display automatically shows the proper setting units and parameters for the active knob. The display settings (and the settings themselves) change as the knob is rotated.

The dynamics settings are also shown graphically on the LCD screen.

DCM Master Displays



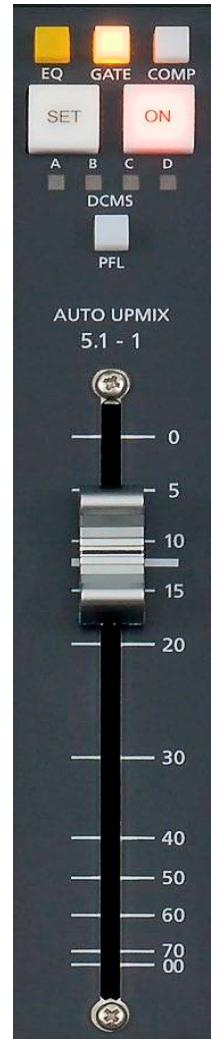
Each channel can be assigned to any combination of the four DCM masters (EFS-DimOne panel). The assigned setting is displayed by the four indicators of the DCMS display group. Channels are assigned to these DCMs by pressing the channel SET button and then pressing the desired DCM ASSIGN button (EFS-DimOne panel).

PFL- Pre Fade Listen

This switch lets the control surface operator monitor the master's pre-fader signal.

Master Faders

These linear controls set the levels of the master channels.



Submixes (Groups) Output

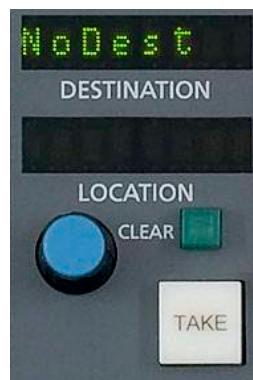
Generally the sixteen audio submixes would operate in stereo mode. They may be mixed to two duplicate mono channels by means of the channel SET button and mode buttons in the MODE section of the EFS-DimOne panel. The current mode will be shown by the LED indicators in the MODE buttons.

Output Destinations, Group 1 Example

Output destinations are selected by pressing the SET button. The DESTINATION display (EFS-DimOne panel) will show the most



EFS-DimOne Panel

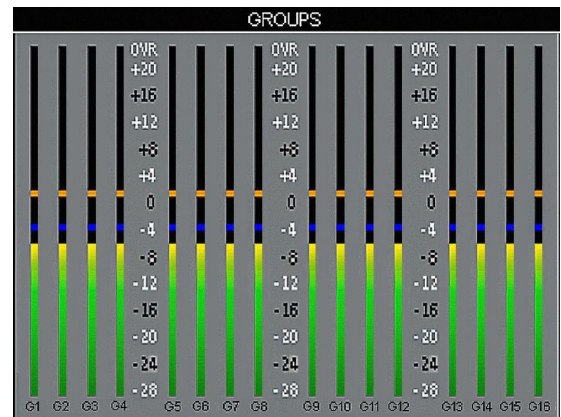


recent output destination assigned. It should be noted, however, that a mix channel can go to multiple destinations, and for this reason the list of destinations (up to four, with ellipsis indication if more than four) that channel is assigned to is displayed in the LCD display when that channel's SET button is active. If the mix is not assigned anywhere the display will show "NoDest."

As you rotate the DESTINATION knob in the EFS-DimOne panel the names of allowable destinations will appear in the DESTINATION display. If G1 is not currently routed to the displayed output, the TAKE button will be lit; if G1 is currently routed to the displayed output, the CLEAR button will be lit. Press the TAKE button when lit to add the currently displayed output as a G1 destination, or press the CLEAR button when lit to delete that output as a G1 destination. You can also "dobby" the DESTINATION knob to step through all of the currently routed destinations.

Destinations for the remaining master outputs are handled in a like manner.

Destinations for the remaining master outputs are handled in a like manner.



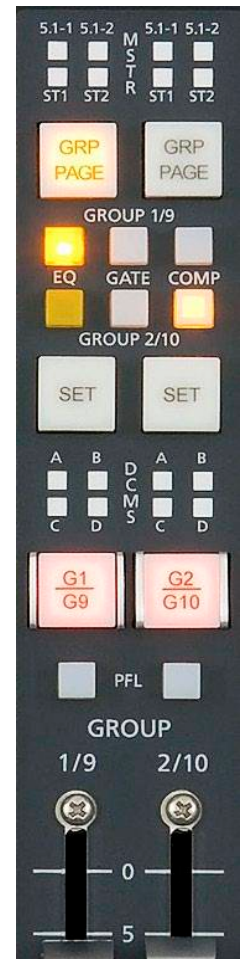
TIP:
DOBBY (pronounce dah-bee) - means to quickly press and release an encoder knob.

Groups Output Display

Each group can be assigned to any of the four main stereo output buses in the center section of the EFS-DimOne panel. The assigned setting is displayed by the four indicators of the MSTR display group.

Group Page Button

The DIMENSION ONE has eight physical sets of controls. In order to accommodate the sixteen group outputs, the controls are shared and group into two pages. When the GRP PAGE switch is off, Groups 1-8 are active. When the GRP PAGE switch is lit, Groups 9-16 are active. You may page groups individually using the GRP PAGE switches. You may also page all groups at once using the GRP PAGE button located on the DCM-DimOne panel. Audio settings for the groups are always active even if you have "paged" to the opposite layer.



EQ

This switch inserts EQ functions that have been preset by the operator in the EQ section of the EFS-DimOne panel. When any knob of the EQ section is rotated, the LCD displays a graphical representation of the EQ settings.



EFS-DimOne Panel

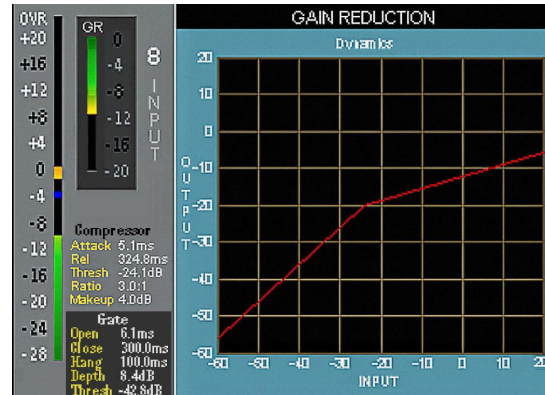
GATE

This switch inserts dynamic functions that have been preset by the operator in the DCM-DimOne panel. When any knob is rotated, the display automatically shows the proper setting units and parameters for the active knob. The display settings (and the settings themselves) change as the knob is rotated.

The dynamics settings are also shown graphically on the LCD screen.



DCM-DimOne Panel



COMP

This switch inserts compressor functions that have been preset by the operator in the DCM-DimOne panel. When any knob is rotated, the display automatically shows the proper setting units and parameters for the active knob. The display settings (and the settings themselves) change as the knob is rotated.

The dynamics settings are also shown graphically on the LCD screen.

DCM Group Displays

Each submix channel can be assigned to any combination of the four DCM masters (EFS-DimOne panel). The assigned setting is displayed by the four indicators of the DCMS display group. Channels are assigned to these DCMs by pressing the group's SET button and then pressing the desired DCM ASSIGN button, located in the EFS-DimOne panel.

ON (G1/9-G8/16) Switch

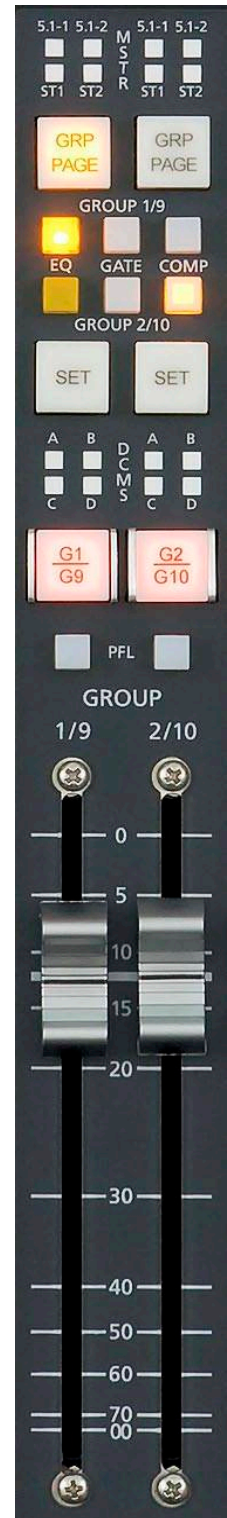
The ON switch turns each group channel signal ON, pressing it again turns the group channel signal OFF. The switch LED lights when the group is ON. Note that there are sixteen groups divided into two PAGES. Groups 1-8 are controlled while the GRP PAGE switch is OFF. Groups 9-16 are controlled while the GRP PAGE switch is lit on a particular group.

PFL

This switch lets the control surface operator monitor the group's pre-fader signal.

Submix (Group) Faders

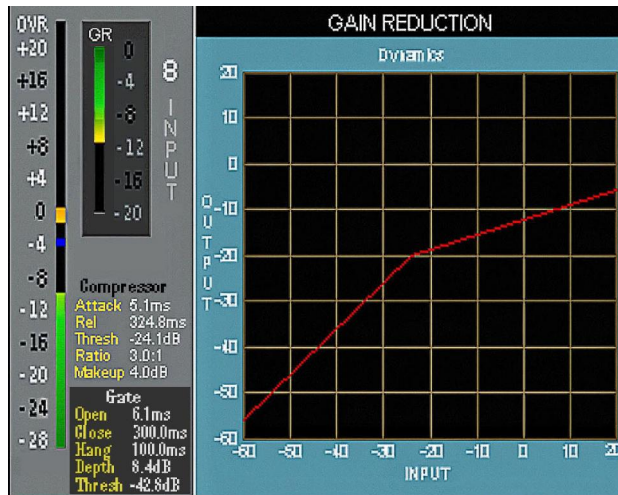
These linear controls set the output levels of the submix channels.



Dynamics Processing Control Panel (DCM-DimOne)

Controls and Functions

The DCM-DimOne panel provides gate, compression and limiting functions for individual input channels. These sections can be accessed by means of the SET buttons on the desired input channels. As you turn the knobs in these sections, the LED display shows the current settings of that knob for the channel currently in SET mode. The knobs may be pressed to obtain a display reading without actually turning them. Any current settings of the active channel will also be graphically shown in real time on the flat panel display.



This panel also contains the AUX, MXM confidence feed section, the audio delay section, the talkback preselects section, the display buttons, the programmable buttons, and the DCM section.

Audio Delay

Audio delay is shown in the DELAY display. Delay is accomplished for inputs, submixes, master mixes, aux sends and mix-minuses by means of activating their corresponding SET button and simply dialing in the audio delay. Delay may be set in milliseconds (0.0 to 667.5) or frames (0.0 to 20.0 in 0.5 frame steps) by means of the MILLI SECS/FRAMES button.



Delay settings are vitally important, permitting audio time delay adjustments to allow for video processor delays or satellite-to-terrestrial link audio/video timing discrepancies.



Gate

The Dynamics section contains a noise gate, useful for reducing sounds below a certain threshold.

The GATE THRESH control determines the signal level at which the gate operates. This level can be anywhere between -60.0dB and +10.0dB. This setting will determine the minimum available setting of the LIMITER THRESH knob; the LIMITER THRESH cannot be set lower than the GATE THRESH.

The OPEN knob determines how quickly the gate opens to allow signal passage once the threshold is reached. It can be set anywhere in the range of 0.1mS to 330.0mS. The gate CLOSE time is adjustable over the same range.

The DEPTH knob sets the amount of attenuation given to signals below the GATE THRESH setting, and can be adjusted to be between 0dB and 60.0dB.

The HANG knob determines how long the gate will stay open after the signal falls below the GATE THRESH level before it begins to close, and can be adjusted between 50.0mS and 3.0 Seconds.



Compressor/Limiter

The compressor algorithm used in the DIMENSION ONE control surface is designed to:

- allow smooth, inaudible, and unobtrusive level control on uneven sources;
- be able to act as a peak limiter for inadvertent overload control;
- enable deep effects if required.

The DCM-DimOne panel compressor section is a compound of many diverse dynamics elements.

The level detector is a pseudo-RMS averaging type with its own symmetrical-in-time attack-and-release characteristic adjustable between 0.1mS and 330mS ("ATTACK" control). At the slower end of its range, by itself it achieves a nouveau-classic "dbx" style syllabic-rate level control. As the time-constant is shortened, it becomes progressively shorter in relation to the lower audio frequencies themselves; the effect is to turn the detector into more of a peak-level detector, necessary for limiting or wilder effects. A secondary effect at intermediate to fast attack-times is that low frequencies are peak sensed while high frequencies are average sensed,

resulting in an effective high-frequency bias (up to as much as 6dB differential) which helps to mitigate the detrimental limiting effect of the resulting audio seeming “bottom heavy” normal to most compressors.

While the overall gain-reduction scheme is “feed-forward,” the heart of the detector stage itself is a feedback limiter; this allows for this carefully-contrived loosely-damped servo-loop to permit far more interesting dynamic effects.

The compressor is “soft-knee,” meaning the compression ratio increases slowly with increasing applied level, greatly easing the sonic transition into full compression; it helps avoid the “snatching” and “pumping” at threshold that many “hard-knee” dynamics units exhibit.

A full range of controls is available over the compressor’s behavior:



Threshold

The THRESH knob sets the level at which the compressor is fully into compression of whatever ratio is set. This can be set anywhere in the range of -30.0 to +10.0 dB

Attack

This control determines how quickly (between nominally 0.1mS and 330mS) the compressor reacts to signals. Faster attack times result in “tighter” and more obvious control; longer attack times lend themselves well to gentler automatic volume control.

Ratio

This control determines how much the compressor’s gain is reduced in relation to the applied signal. For instance, if the ratio is set at 3:1 and the input level above threshold changes by 12dB, the output level will change by 4dB. Normal usage is between approximately 2:1 and 4:1; anything greater than, say, 7:1 may be considered “limiting.” The ratio can be set anywhere from 1.0 : 1 to 20.0 : 1.

Release

This knob determines the nominal time the compressor takes to recover after excitation (between 50.0mS and 3.0 Seconds). Short release times make for more intense, denser, obvious processing; longer release times are better suited to automatic gain control.

Makeup Gain

When fairly deep compression is invoked (large gain reduction) it can be necessary to increase the compressor’s output level back up to nominal system signal level; up to 20dB of output gain is available to allow this.

AUX SENDS

There are a total of eight AUXs available in the DIMENSION ONE control surface. We will begin by explaining the operation for AUX 1. The same discussion can be applied to any of the eight AUXs.

Any surface input channel can feed AUX 1. To do so, press the SET button on the input channel of the ISS-DimOne panel, then press the ON/OFF button for AUX 1. If the button is already lit when you press the channel SET button, then that channel is already feeding AUX 1.

Channels normally feed the AUX a post fader signal that follows the channel's ON button (post on).

PRE ON - Any AUX SEND bus may be configured to be PRE fader input ON in the surface's OPTIONS.TXT text file.

The channel can be made to feed a constant signal level to the AUX regardless of its fader position by pressing the PRE FDR button (PRE/POST). PRE ON and PRE FDR can be used in any combination.

You can set the level of each channel feeding AUX 1 independently. The AUX 1 control affects the signal level to AUX 1 of the channel that currently has its SET button lit. Thus you can generate a mix to AUX 1 from several channels if desired.



EFS-DimOne Panel



EFS-DimOne Panel

Once you have the desired channel(s) feeding AUX SEND 1, you can adjust the output level of AUX 1 by using the AUX 1 MASTER, the knob labeled "1" in the MASTERS area. The actual destination that AUX 1 is routed to is assigned by first pressing the AUX 1 SET button, then dialing up the desired destination on the DESTINATION knob on the EFS-DimOne panel and pressing the associated TAKE button.

AUX 1 can be mono or stereo. Press the AUX 1 button, then press the appropriate MODE button on the EFS-DimOne panel. If AUX 1 is in STEREO mode, and if the selected channel is in STEREO mode as well, the AUX 1 control will act as a BAL control if it is pressed down while being turned. If the selected channel is in MONO, the pressed action of AUX 1 is as a PAN. NOTE that surround sends are not created. A surround source will send the LF-RF signals to a stereo AUX.



MXM Confidence Feed

This system provides a means of sending an external signal to any or all of the sixteen MXM outputs when the control surface is not in use or is not on the air. This is typically used during show setup or airtime operations so talent can remain confident that their MXM feeds are active and working. A typical confidence feed signal might be master control audio.

A bank of sixteen buttons allows individual activation of confidence feeds to any of the MXM outputs. Additionally, all sixteen can be put into confidence mode by means of a CONF ALL switch. Also, the Confidence All feed function can be triggered from an external contact closure (usually a Tally from master control) and armed for such action by means of the REM TRIG button. All

Confidence Feed programming is included in the SYSTEM ROUTER storage.

To set and store a confidence feed signal, go to MIX-MINUS MASTER section of the EFS-DimOne panel, and press any MIX-MINUS MASTER switch. Select the desired confidence feed Source in the SYSTEM ROUTER section of the EFS-DimOne panel by rotating the SOURCE knob until the desired signal is shown in the SOURCE display, at which time the TAKE button will light. Press the TAKE button to program.

You can see what the confidence feed Source is by pressing the CONF ALL

switch and looking at the MXM Routing information on the LCD monitor.

REM TRIG - Requires that a Logic Only input signal be created in XPoint in the DESTINATION column. This signal is then cross-connected to the surface's CONF ALL signal. Contact Wheatstone Technical support for details.



EFS-DimOne Panel



EFS-DimOne Panel

STEREO 1	STEREO 2	PFL	CONFIDENCE FEED STATUS
OVR	OVR	OVR	CF 1: MXM 1 NoDest
+20	+20	+20	CF 2: NoSource NoDest
+16	+16	+16	CF 3: NoSource NoDest
+12	+12	+12	CF 4: NoSource NoDest
+8	+8	+8	CF 5: MXM 5 NoDest
+4	+4	+4	CF 6: MXM 6 NoDest
0	0	0	CF 7: MXM 7 NoDest
-4	-4	-4	CF 8: NoSource NoDest
-8	-8	-8	CF 9: NoSource NoDest
-12	-12	-12	CF 10: MXM 10 NoDest
-16	-16	-16	CF 11: MXM 11 NoDest
-20	-20	-20	CF 12: MXM 12 NoDest
-24	-24	-24	CF 13: NoSource NoDest
-28	-28	-28	CF 14: NoSource NoDest
			CF 15: NoSource NoDest
			CF 16: MXM 16 NoDest

Info Button



Pressing the INFO button will bring LCD display with technical information about the surface's software version and connection status to its companion rack MT link, Ethernet link, and automation interface. Press the INFO button again to revert the display to the previous screen.



Talkback Preselects

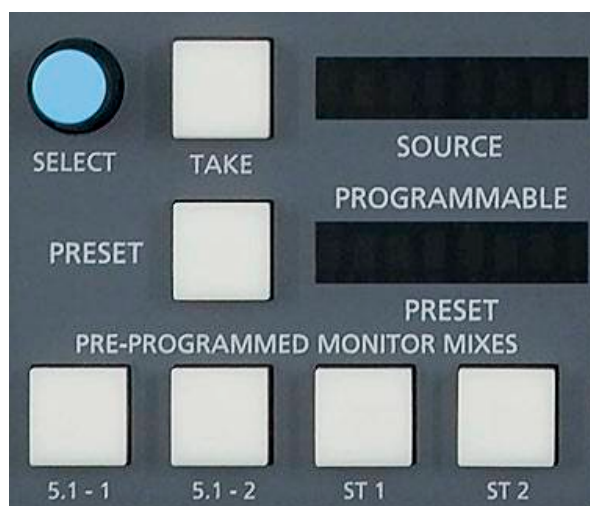
These four switches may be programmed to interrupt any control surface mix output with talkback. Once a specific output has been programmed into the preselector, the talkback signal can be sent to that output at any time by pressing the corresponding switch.

Each individual TB button is programmed as follows: press the PGM/TAKE button (this button will light), then press the TB button you want to program (the TB button and its associated display will flash). Then rotate the SELECT knob (programmable section on the EFS-DimOne panel) and available destinations will be shown in the SOURCE display. When the desired channel is shown, press TAKE button located next to the SELECT knob (EFS-DimOne panel), and the appropriate TB PRESELECTS display will then match what is shown in the SOURCE display on the EFS-DimOne panel. Repeat this procedure for each of the four TB buttons. The procedure will time out after about 5 seconds if you fail to complete one of the steps.

When EVENTS are stored, the four TB preselects as displayed at the time of the EVENT SAVE action will be also stored and can be recalled with that EVENT.



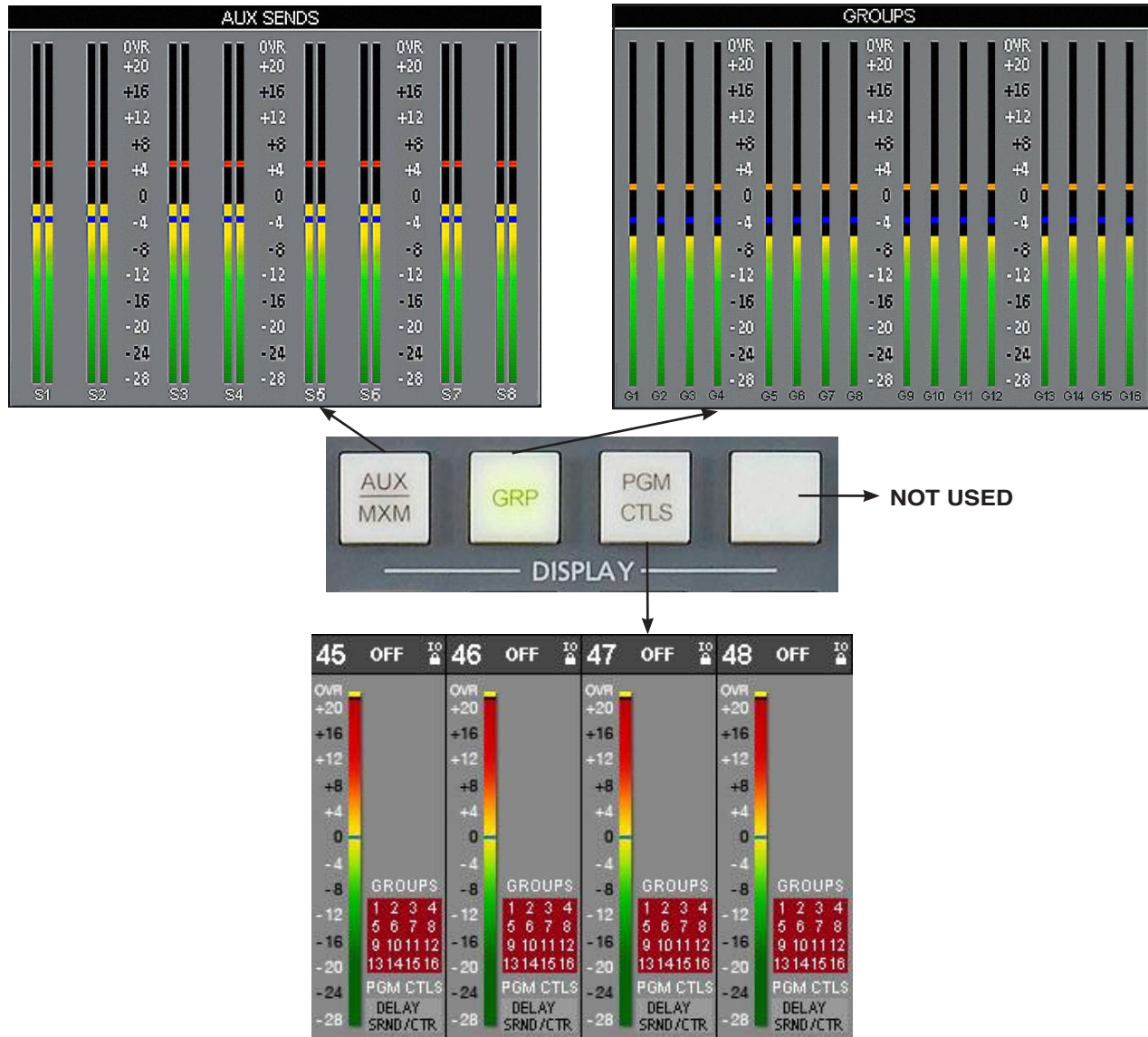
DCM-DimOne Panel



EFS-DimOne Panel

Display Buttons

These switches control the display modes for the LCD monitor.



Programmable Buttons

These (12) momentary switches and indicating LEDs are designed for user accessible external functions (GPIs). With these switches the user can fire Salvos or make a temporary crosspoint without having to wire any physical logic ports. These switches may also be mapped to control physical Logic card output ports, and the LEDs on the Spare buttons may also be lit by a remote device connected to a Logic card input port. See the Bridge Router manual for details.



Page Buttons

The three page buttons located above the DCM mute controls on the DCM-DimOne panel are used to simultaneously toggle PAGE buttons. The PAGE A button places all input channels in Page A mode, and the PAGE B button places all input channels in B Mode. The GRP PAGE button, when pressed, places all groups into page if any of them are not in page, or takes all groups out of page if they are all currently in page.



Mute Groups

The MUTE switch for each DCM provides a rapid way to mute a group of signals. Any signals that are assigned to a DCM will be muted when the MUTE switch is ON.

Fader

The DCM will reduce the levels of all signals assigned to that DCM as it is lowered. When the DCM fader is brought all the way down, any Input or Output faders assigned to the DCM will MUTE.

