



## 24-7 Wheatstone LIVE!

**With over 250 USA television clients, Wheatstone KNOWS live TV!** Our D-5.1 and D-9TV surfaces combined with our Bridge router-based mixing engine bring tremendous benefits to our customers. With them you can route ANY source onto ANY fader and transfer ANY mix to ANY destination, with all control surfaces sharing the same common signal pool. And since our designs avoid function-sharing controls and layering, even the casual mix engineer can be assured error-free operation and a truly rapid learning curve. And because Wheatstone designs, manufactures and assembles all its own equipment, quality and expert support are assured.

 **Wheatstone**  
the digital audio leaders  
[www.wheatstone.com](http://www.wheatstone.com)





# ***The D-5.1***

---

# ***Television Master Control Console***



## ***THIS is the Surface with ALL of the Tools!***

### **YOU CAN'T PLAN ON BIG-BREAKING NEWS, BUT YOU CAN CERTAINLY PREPARE!**

The D-5.1 has all the controls needed to handle the largest election or the most surprising disaster, yet it has the logical, straightforward and predictable layout that an operator really needs to work quickly and without error.

It can generate a 5.1 surround sound mix and derived stereo mix so you can simulcast high definition *and* standard definition audio mixes. It can simultaneously provide two additional stereo mixes for international and affiliate feeds and even has a grand master function—each mix

with its own dedicated fader. Wild faders are avoided to eliminate heat-of-the-moment errors. ***Live has no rehearsals.***

The D-5.1 can handle all the surround sound you can throw at it. Every single input channel can handle mono, stereo, and 5.1 or generate those signals **simultaneously**. You won't be unpleasantly surprised with the sudden loss of processing power or fader count found in lesser designs.

Naturally, this console gives you all the foldback you need and several ways to accomplish it. Each channel strip has a dedicated Bus-Minus® control that can bus-*minus* for talent feeds or bus-



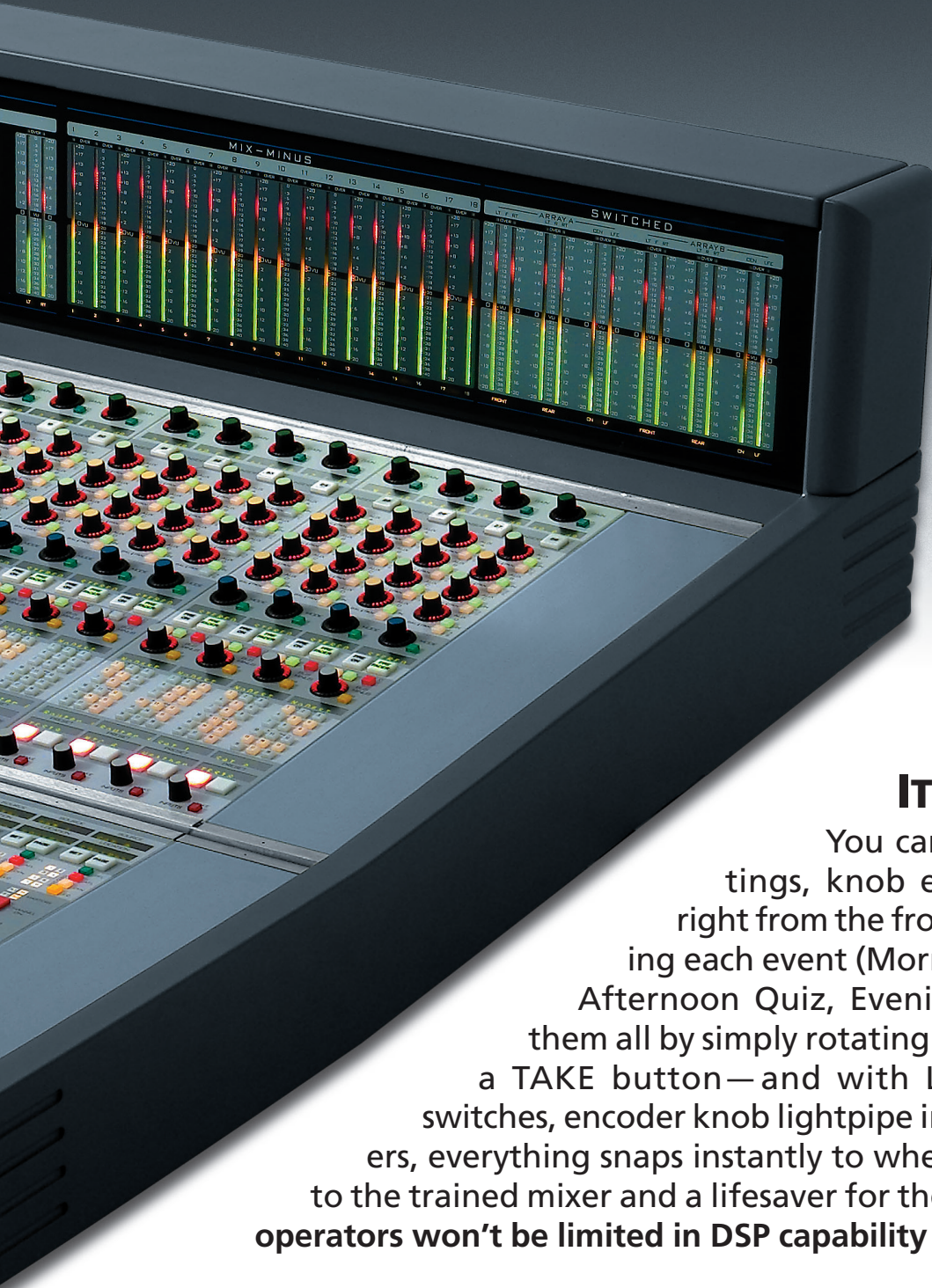


*plus* for direct recording, complete with individual solo and talkback switches to keep the operator in command. And with dedicated controls for every strip, you can have as many bus-minus feeds as channel faders. Additionally, the D-5.1 generates eighteen mix-minus outputs—each with individual *or* global confidence feeds to keep your talent informed.

**In Live TV, communication is vital.** The D-5.1 operator has direct talkback functions to all bus-minus feeds, mix-minuses, auxiliary sends, to the eight subgroups, the five studio feeds, production and headphone systems, plus eight other preselectable talkback destinations facility wide—in short, ANYWHERE you need to talk.



**THE D-5.1 CONTINUES WHEATSTONE'S UNDERLYING DESIGN PHILOSOPHY:** to provide mixing power with ease and clarity of operation. This is a software-based product that still has the feel of our traditional hardware-based equipment.



## **IT'S GOT MEMORY.**

You can store events (all fader settings, knob encoders and switch states) right from the front panel of the console, naming each event (Morning News, 11AM Talk Show, Afternoon Quiz, Evening Update, etc.) and recall them all by simply rotating a selector knob and pressing a TAKE button—and with LED illuminated electronic switches, encoder knob lightpipe indicators and motorized faders, everything snaps instantly to where you stored it—a real plus to the trained mixer and a lifesaver for the intern. **With the D-5.1 your operators won't be limited in DSP capability or hampered by complexity.**



# A SENSIBLE LAYOUT

*The CONTROLS you need WHERE you need them!*  
*The DISPLAYS you need the WAY you need them!*

## D-5.1 INPUTS

**GAIN** – This control will adjust the gain of any source selected: mic, analog line or AES signal, with its values shown in dB. Because the Bridge system is router-based, remote cages can be located directly at the point of source via a single CAT-5 or optical connection.

Pre-arranged **INSERTS** for each channel can be activated upon demand. An intuitive insert management system is provided on the console's shared resources panel (see right).

The D-5.1 has eight stereo **AUXILIARY** busses with lightpipe encoder controllers. A bal/pan function is accessed with a push and turn motion. A momentary push accesses the PRE channel on and PRE fader switches below. For added versatility the shared resources panel also provides talkback to any of the 8 aux sends as well as global pre and post selection.

The channel **MODE** knob acts in conjunction with an adjacent mode switch, providing a stereo BAL function, a mono PAN function and a BLEND function (ideal for ENG actuality tracks). An 8-character indicator keeps the mix engineer informed of current settings.



The **MXM/AUX** master section (to right) provides a consolidated means of setting the master gain level for each of those mixes (gain value indicated in dB). This section also provides talkback to any of these busses and soloing of bus output mixes. PRE/POST buttons allow global settings.

Centralized **BUS ASSIGN** (to right) is accessed by pressing a channel SET button; the illuminated switches will show the current settings and allow re-assignment at will.

## D-5.1 SHARED RESOURCES PANEL



The **COPY/PASTE** section provides a convenient way to duplicate the settings of one input channel strip to any other channel strip, or even to all panel strips—a quick way to initialize a particular operator's setup.

While **MODE** settings can be done individually directly at the input channels, the additional convenience of centralized assignment is also provided.

**DCM ASSIGN** switches (accessed through channel, sub-group or master SET buttons) allow the level control or total muting of multiple fader groups using the four master DCM faders and associated MUTE switches.

The **EQ SECTION** provides four bands of full parametric equalization and separate high and low pass cutoff filters. Independent left and right phase switches allow correction between channel pairs or even reversing both pairs. A notch filter provides an ideal solution for removing hum or other single tone interference. Dot matrix displays show realtime settings of the most currently adjusted knob. The meterbridge LCD flatscreen display will also show color-coded realtime response curves and numerical parameter settings.



The **BUS-MINUS** section provides a lightpipe level encoder and the convenience of direct talkback and solo listening. The +/- switch, in conjunction with the IN switch, gives the added versatility of bus-plus AND level controlled direct out—handy for remote recordings. Because the mix engine is router-based, the feed can be sent to any output port in the system (mix follows talent). The 8 character display lets the operator know the mix destination.



#### INPUT CHANNEL SOURCE SELECTION

— There are two means of presenting input signals to the channel: simply hit the A button to select the source indicated in the preset A window, or the B button for the B window source. Or, rotate the INPUTS encoder knob (signals shown in source display window directly below) and press TAKE when the desired selection is visible. The INPUTS knob can also be used to preload the A and B presets, so the operator can have a current selection and two hot standbys, yet still access any source in the system when required. Setup software also allows individual channel source restrictions (i.e., channel one may only select certain microphone channels, while channel 24 is allowed systemwide access, etc.)

## Realtime Control

These input channels are laid out so the operator can quickly access the controls required in a realtime situation and display needed information in a logical uncluttered manner. You can instantly identify the current source and be totally aware of your next two immediate alternatives. The mix-minus matrix is clearly visible and channel signal strength and processing is right there next to each fader.

**The D-5.1 Bus-Minus system has no equal.** Its output is router selected with the destination displayed right on the panel. A +/- switch allows it to operate as a routable direct output or a small mini-mix.

**MIX-MINUS** (to left) — While input channels all have individual Bus-Minus send controls, the D-5.1 also provides 18 MXM outputs as well to use as a talent foldback system. Assignment is accomplished on the channel's front panel and indicated through LED illuminated switch buttons. This system, combined with the MXM confidence feed system (located on the D-5.1 Dynamic/Confidence Panel) provides a quick convenient foldback function that requires very little operator interaction once set up.



#### GROUP MIX-MINUS ASSIGN

switches allow each of the eight stereo groups access to the first eight of the console's 18 mix-minus busses. This provides a rapid means of developing a mix-minus matrix. The switches are illuminated and positioned directly above the fader panel for clarity of operation.

## A Logical Layout

Crisp bright switches plus a meterbridge LCD flatscreen display makes shared resource management clear, concise and fast. Toggling any channel's SET button will activate its switch displays and lightpipe encoders to reflect current settings, allowing quick query and easy setting changes.

**The D-5.1 will not run out of processing power.** There is a dedicated DSP for each and every input channel. Channels can ALL be in 5.1 surround mode and accessing EQ and dynamics simultaneously if need be, with no danger of DSP allocation lock-outs. The D-5.1 won't run into signal path limitations either. You can configure the console so subgroups are mono or stereo, or even 5.1 surround. The auxiliary sends can ALSO be configured to mono, stereo or 5.1 surround.

*It's very important to examine the bandpass capabilities of a digital console. At Wheatstone we've worked out the details.*

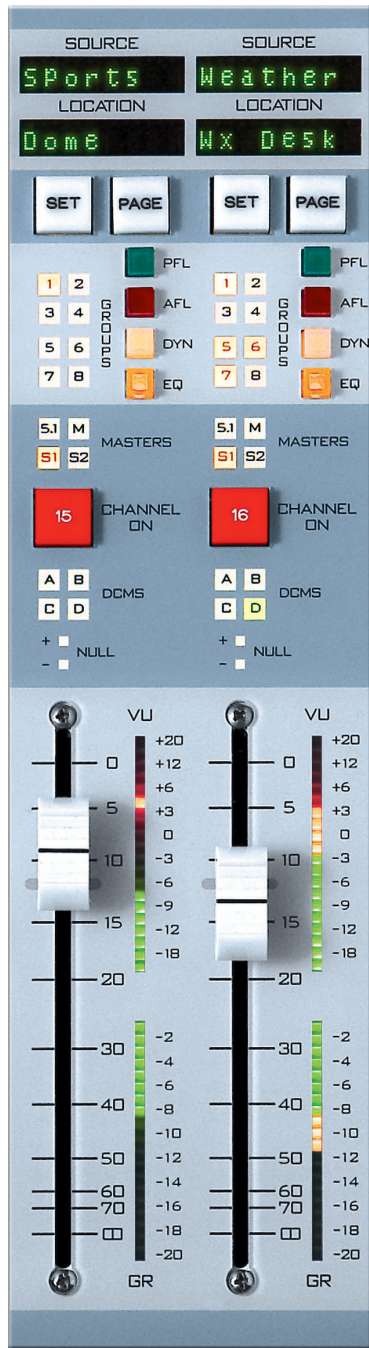


## D-5.1 INPUTS

The **SOURCE** window displays the current signal selected. The **LOCATION** window below it shows the location of that source as well, greatly reducing potential errors. A **SET** button allows channel access to shared resource controls such as EQ and dynamics. The **GROUPS**, **MASTERS** and **DCM** indicators give the operator continuous display of the channel's output assignments. **DYN** and **EQ** buttons will switch in the dynamic and equalization settings that were last engaged for the channel.

Optional motorized faders can provide **PAGING** to allow the control capabilities of a much larger console within a small mainframe footprint. Using the **PAGE** button (next to **SET** button, above) you can toggle between channel #15 on page A and channel #35 on page B.

Channel **FADERS** (conductive plastic of course) are laid out so there is no dangerously positioned adjacent switching next to them waiting to cause operational accidents. The motorized fader option instantly resets faders to stored levels when the console's event computer (located on the righthand portion of the surface) executes a stored event.

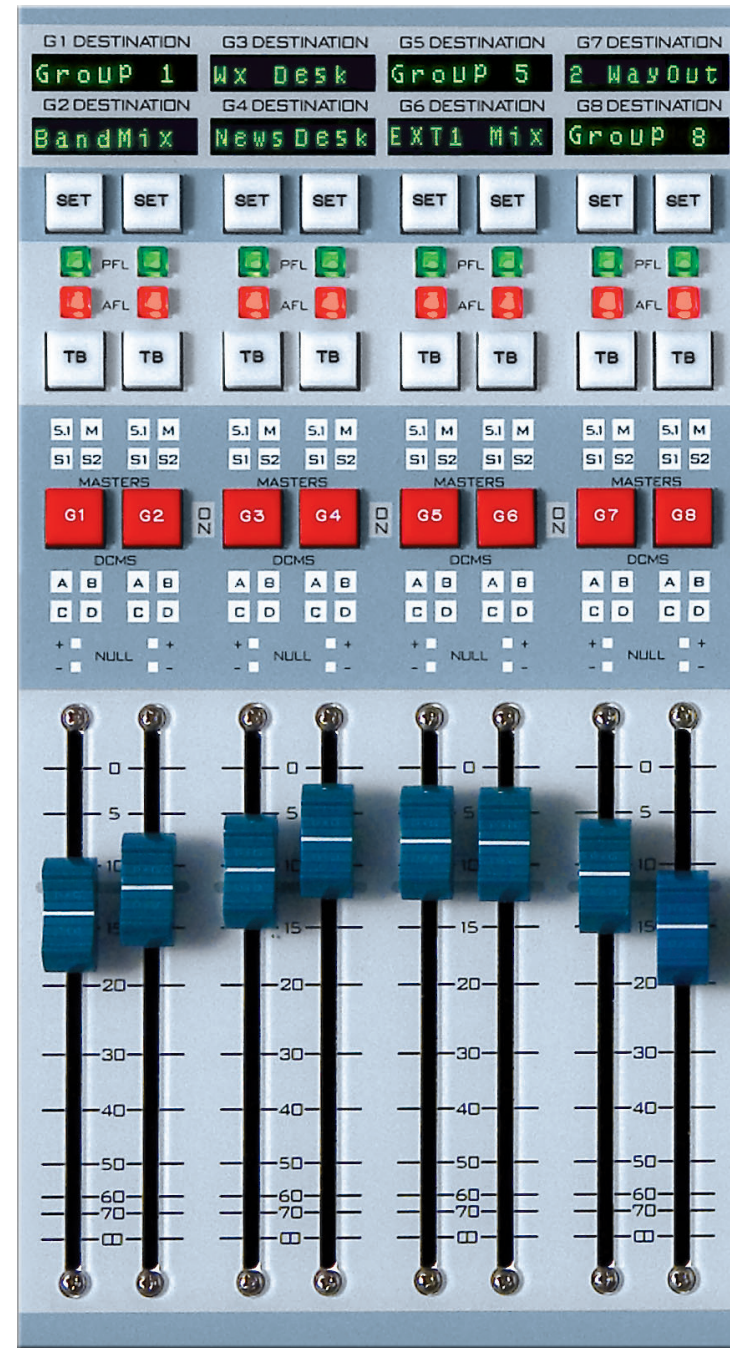


Group **DESTINATION** Displays (to right) – It's like having a routable direct out! The group's mix output is displayed in the destination window and accessed by simply pressing the **SET** button and using the X-Y controls located on the monitor/bus master panel (see next page).

Since the **SUBGROUPS** (right) are in fact audio mixes, not just group level controllers, they can be routed to direct output or master output destinations.

**DCMS** (digitally controlled masters A thru D, located on the extreme righthand surface of the console) can control the level of groups of channels—announcers, stadium mics, inserts, etc.—without tying up valuable subgroup mixes. The four **DCMS** all have individual mute switches, so they can also be operated as simple mute groups.

## D-5.1 SUBGROUP MIXES



By means of the **SET** button and the shared resources panel, subgroups may be assigned to any of the four master output faders (5.1, stereo 1, stereo 2, and mono). The bus assign will be indicated by continuous display through the LED backlit windows located above the subgroup master on/off switches.

Group **TALKBACK** switches allow instant access to group outputs; a real convenience when operators feed talent from these faders.

**GROUP FADERS** control the output of each of the eight subgroup mixes. These mixes can be software configured to be stereo, mono or 5.1 surround sound. **SET** buttons allow access to the central assignment section and X-Y router section. Because these busses have software configurable mix width, it's possible to have mono or stereo or 5.1 submixes that are routable to external destinations.



# A SENSIBLE LAYOUT

*The CONTROLS you need WHERE you need them!*  
*The DISPLAYS you need the WAY you need them!*

## D-5.1 MONITOR / BUS MASTERS

**TEST TONES**, pink noise and dual frequency stereo ID tones are available and can be assigned by means of individual channel SET buttons (note the test tone ON button can be secured by the function lock feature).

Separate **PFL/AFL MASTER** level controls (with lightpipe indicators) are provided. DEFEAT switches can prevent these signals from reaching normal control room monitors if they are being used, for instance, to feed dedicated speakers instead. The MUTE MASTER is used to adjust the level of DIM provided on studio and control room monitor feeds; it can also be defeated.

**5.1 SURROUND** – Lightpipe encoders and vertical and horizontal graphic displays help visualize positioning. Additionally the meterbridge LCD flatscreen displays a realtime color soundfield graphic.

**SWITCHED METERS** – The D-5.1 has two independent switched meter arrays. Each array can display up to eight signals at once, allowing total metering of multi-channel sources (such as surround sound). Each encoder and take button allows access to any output or input signal in the router system.



**X-Y ROUTER** (left) – The integral routing capability of the D-5.1 mix engine will forever eliminate patch bays. While input channels may select sources locally, the lefthand side of this X-Y section allows selection of the desired input channel strip and the input that's assigned to it, along with an indication of the physical location of that input. In a big complex, this is a real help. Similarly, it's possible to select an output mix and designated destination and see the physical location of that destination. The D-5.1 is well thought out.

The **EVENT COMPUTER** (left) allows straightforward storage and naming of all the console's switches, knobs and fader settings. An operator can walk into the room, scroll to, say, his six o'clock news segment, and push a preview button to see what the settings will be. If acceptable, he may then ARM and TAKE those settings and everything will pop into place. If a mistake is made, there's always UNDO.

## D-5.1 DYNAMIC / CONFIDENCE PANEL

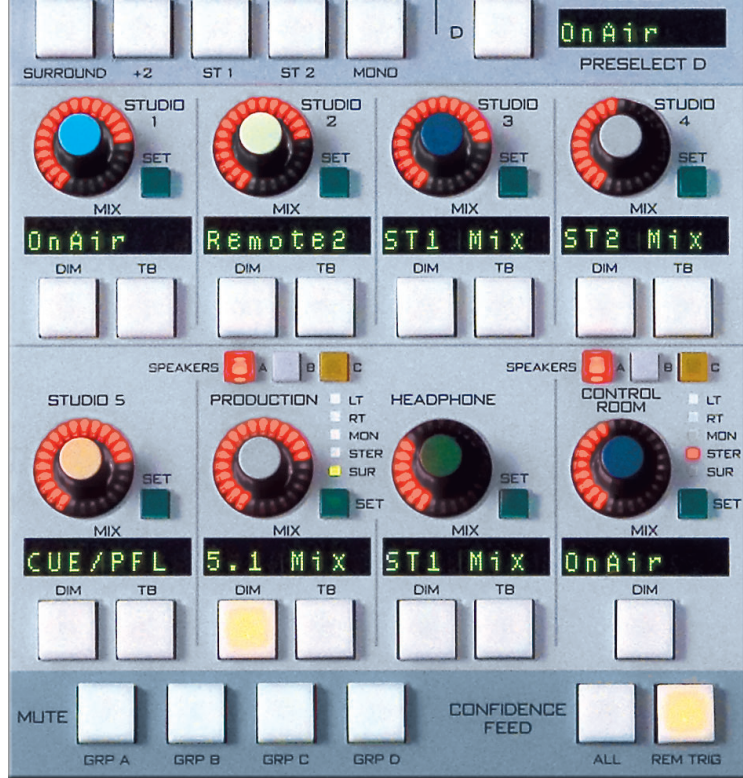


The **DYNAMICS** section of this console is quite extensive. It provides both full parameter limiting control to help the operator both contour signal loudness and also prevent overloads, keeping things consistent and distortion-free. The most current knob setting parameters are displayed in the 8-character dynamics window so the eye can observe the hand. Naturally, all dynamic curves and settings are also displayed on the meterbridge LCD flatscreen. A GATE section helps reduce background noise from idle open mics and greatly increases the production versatility of the console.

**TALKBACK PRESELECTS** - As noted elsewhere, the console already has direct TB buttons to all busses. The Talkback Preselect section is yet a further enhancement, whereby eight of the most used destinations can be programmed onto adjacent switches with eight character dot-matrix displays indicating the preset. In Live TV communication is VITAL!



The **MONITOR SYSTEM** is truly comprehensive—it can be used to feed eight different destinations—typically the control room, multiple studios, headphones, remote talent locations, or a producer location. Both the control room and producer outputs have switchable listening modes (surround, stereo, mono, etc.) and three speaker selectors to simulate various listening environments. Because these monitors all have direct talkback switches, vital communication is a push button away at all times.



By using the **MONITOR SET** buttons (left) and the preprogrammed mix switches directly above, these monitors can instantly receive the most frequently accessed mixes. But an extra plus is an array of four programmable monitor source switches above and to the right; even further, access to the entire mix system is possible by means of the upper **SELECT** encoder and its adjacent **TAKE** button. With this much monitor power many program segments can be accomplished through this section alone.



**CONFIDENCE FEED** – This system is used to assure talent that their monitor is on-line and to enable them to hear their cue when the time comes. When any of the confidence buttons are pressed, or they're all activated (**CONF ALL**) the talent located at any of the eighteen **MXM** destinations will normally receive a pre-live **PROGRAM** feed from the console (GUI selected to be, for instance, the master stereo out, 5.1 surround, or any other predetermined mix). When the console is finally routed on-air a remote trigger then switches the talent to their respective mix-minus feeds, indicating on-air status. A **STATUS** display button triggers a flat-screen pop-up window that shows all input and output connections for each of the individual mix-minus and confidence feeds.

**A BUSY NEWS COMPLEX NEEDS A LOT OF MONITORS.** The D-5.1 has just that: eight of them, with a built-in communication system right there. Wheatstone knows that talent feeds are vital; that's why the monitor section has such an extensive source selection system.

**Our Event Computer** can store and recall thousands of parameters yet is so easy to use anyone can learn to operate it in a minute or two.

**THIS IS A NO COMPROMISE CONSOLE!** It's a TV only console, not a design adapted from the recording industry, and that's why it has such extensive communication, display and live talent functionality. Live broadcast operators have to interact between the talent, production instructions and pre-recorded material. *The D-5.1 is optimized for only television.*

**D-5.1 MASTER OUTPUTS (shown below)** – The D-5.1 has all the master outputs you'll need, and with the derived +2 stereo feature you'll be assured your HD and SD feeds both have the same content. Destination displays eliminate the need for masking tape and felt tip pens.



## D-5.1 MASTER OUTPUTS

### DESTINATION DISPLAYS –

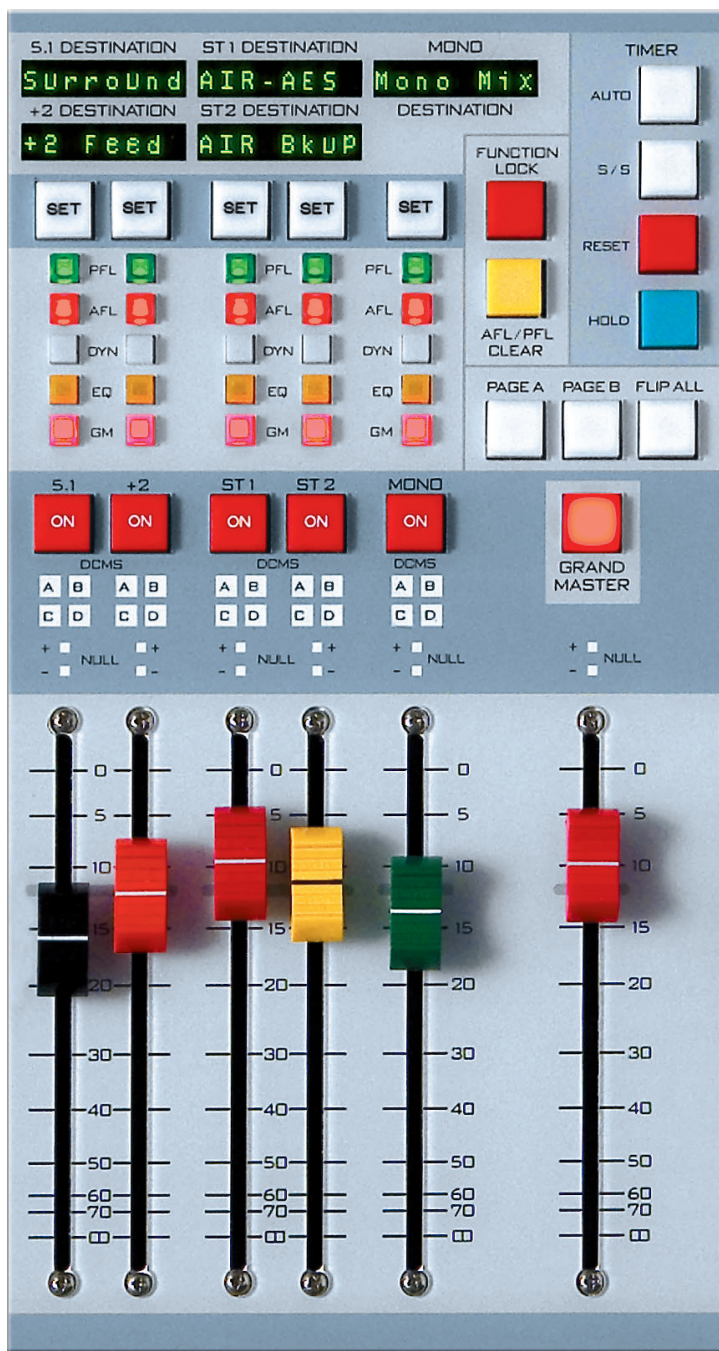
It's like having a routable direct out! The master mix output is displayed in the destination window and accessed by simply pressing the SET button and using the X-Y controls located on the monitor/bus master panel (above).

### COMMON ACCESS SWITCHES –

The PFL, AFL, DYN, EQ and GM (grand master) switches are close at hand so they may be easily identified and switched on the fly.

### MASTER FADERS –

Five master output mixes are controlled through conductive plastic faders (motorized option available). Note that these mixes can be routed to any destination in the system as required (i.e., transmitter 1, transmitter 2) or have re-assignment stored through the event computer (morning show goes to one location, six pm news to another). The +2 stereo output is a composite mix derived from the 5.1 surround mix, so your high def signal and standard def signal are both truly compatible. The GRAND MASTER provides a means of controlling any combination of these masters with only one fader.



The **TIMER** can be controlled manually or be triggered from machine starts.

**FUNCTION LOCK** (left of timer) can be used to prevent changes to switch and encoder knob settings you wish to protect.

**AUDIO DELAY SYSTEM –** (see right) Video processing delays can misalign audio and video. The D-5.1 can correct this in either milliseconds or frames so the program is resynced. A significant benefit of the D-5.1's event system is that these delay settings can be stored and then recalled later when the same video equipment is activated again.

The **PAGE** system (left, above Grand Master switch) allows the function of a large console within a small footprint. For example, a console with 20 channel faders could operate forty channels of audio simultaneously. These switches let you toggle globally between A and B page settings or FLIP ALL channels to their opposite settings simultaneously.

## D-5.1 DCMS PANEL



**PROGRAMMABLE SECTION –** a real Power Tool! These ten switches (immediate left) can be used to trigger surface or system-wide salvos, contact closures on optical I/O cards (that can be located in the main equipment room or in remote bridge cages at point of source locations), or to control virtually any specialized studio or station function envisioned.

**DISPLAY BUTTONS** (left, below delay readout) provide a convenient means for showing additional information on the meter-bridge flatscreen. The D-5.1 is also equipped with a very intuitive yet extensive popup **HELP** system for fast access to clear and concise instructions on operational features. The operator, using the **HOME** button, can normalize the display, and the station engineer can access analytical data through the **INFO** button. A fourth button is reserved for future application.

**DCMS/MUTE GROUPS –** This section adds an additional layer of control that can refine the mix. Numerous inputs could be assigned to DCM "A" (i.e., announcer mics); stadium mics could all be on DCM "B"; and on-field mics could be assigned to "C", so a balance of those mixes can be centrally controlled. Any of the assigned inputs can be instantly muted by toggling the red **MUTE** buttons (a traditional function also found on older analog consoles). Additionally, the D-5.1 provides DCM access from the subgroup faders and any of the five master mix faders.



# *D-9TV: Compact and Po*



*The same technology as our larger D-5.1 console, with no compromise in flexibility—just a differently tailored tool set.*



# Powerful!



## UND DIGIT

*The D-9 has ALL the controls needed—right WHERE they're needed,* complete with well-lit switches and encoder lightpipes for fast visual confirmation—no complicated layering or function sharing to surprise your operators. It's all instantly there: fader, primary bus assigns, bus-minus control, aux sends and channel gain. Only secondary functions (like equalization and dynamics) are centralized. Touchscreen displays are avoided to eliminate a single component point of failure.

The D-9 has a well thought-out talkback system, eight subgroup *mixes*, as well as four DCMs (digitally controlled master/mute busses). *Plus* eight mix-minus busses with a full confidence feed system. Subgroups, DCMs and Masters all have dedicated faders, so these functions are one step and error-free (no assignable faders utilized).



**SO MUCH CONTROL—SO LITTLE REAL ESTATE!** This tabletop control surface can fit into the tightest studio or mobile van. A *single wire* links it to the router-based mix engine. And with optional paging and motorized faders you can control forty inputs in a 24 channel footprint.



## COMPLICATED AL AUDIO

**AND** because our Bridge mix engine is router-based, you can send your mixes to any destination required (“mix follows the talent”). All switch settings, knobs and motorized fader settings can be front panel stored, named and recalled (i.e., morning show, 6 o’clock news, afternoon talk, etc.), so each operator can normalize the console to his own individual program segments—a real help for interns!

## RELIABILITY

WHEATSTONE has built over a thousand digital broadcast consoles. We *know* DIGITAL—all its benefits, all its quirks. Our design objective is to avoid single points of failure.

Our power supplies (*external*; not internal to electronics) are available in redundant failsafe configurations, each with its own power cord, fan and military-style DC connector. Our Bridge engine can be ordered with a redundant DSP *card* (not just a chip) that will automatically take over and report in the event of a failure. Equally important, you can have an automatic standby CPU *card*, both in the engine cage *and* in the control surface. Perhaps most important of all, our Wheatstone operating system is *embedded* and *realtime*, so it doesn’t require a desktop PC to function; only to configure.

***RELIABILITY is in the details.***

## FEATURE LIST:

- *router-based source/destination selection*
- *three stereo output busses*
- *5.1 surround sound*
- *eight stereo subgroups*
- *four stereo auxiliary sends*
- *four DCM master busses / group mutes*
- *eight mix-minus outputs*
- *Bus-Minus® outs (w/TB and Solo) on every input*
- *CR and HDPN monitors plus dual studios, all with independent source selection*
- *pan/bal, mode, EQ/dynamics on all inputs*
- *fullscale digital peak and VU metering*
- *event storage and recall*
- *programmable talkback communication*
- *programmable source access*
- *independent operation (no PC required)*
- *intuitive graphic interface setup software*
- *mix follows talent, logic follows source*
- *on-air safety locks, function lockout feature*
- *confidence feed system*
- *motorized fader option*
- *dedicated master, sub and DCM faders (no wild faders)*
- *12 user-programmable switches*
- *primary bus assigns on channel strips*
- *talkback to all MXM, Bus-Minus, monitors, auxiliary sends, and subgroup outputs*



# A SENSIBLE LAYOUT

*The CONTROLS you need WHERE you need them!  
The DISPLAYS you need the WAY you need them!*

page 14

## D-9 INPUTS

**SELECT ANY INPUT** connected to the router-based mix engine. The LCD meterbridge panel directly above displays the current source and your backup preset source. LIVE takes SPEED.

**GAIN** – Digitally controlled mic preamps, AES, or analog line inputs can be located in point of source remote cages.

Four **STEREO AUX SENDS** can tap a pre or post fader, or pre or post channel on/off signal for true flexibility. Lightpipe encoders display current (or recalled) settings. Press and turn the knob to engage BAL. For added versatility, talkback to the aux masters is also provided.

The **BUS-MINUS** section provides a quick and convenient talent feed complete with instant talkback. A solo button lets the operator monitor the talent signal feed. Because the mix engine is router-based, the feed can route to any output port in the system (mix follows talent).

Preset **DYNAMICS** and **EQ** can be activated on demand.

Primary **BUS ASSIGN** is right where you need it, right now! Secondary busses (GROUPS and DCMS) are assigned from a central location to reduce channel strip clutter. Flush lamp indicators clearly display assignment status.



## D-9 CENTRAL CONTROL PANEL

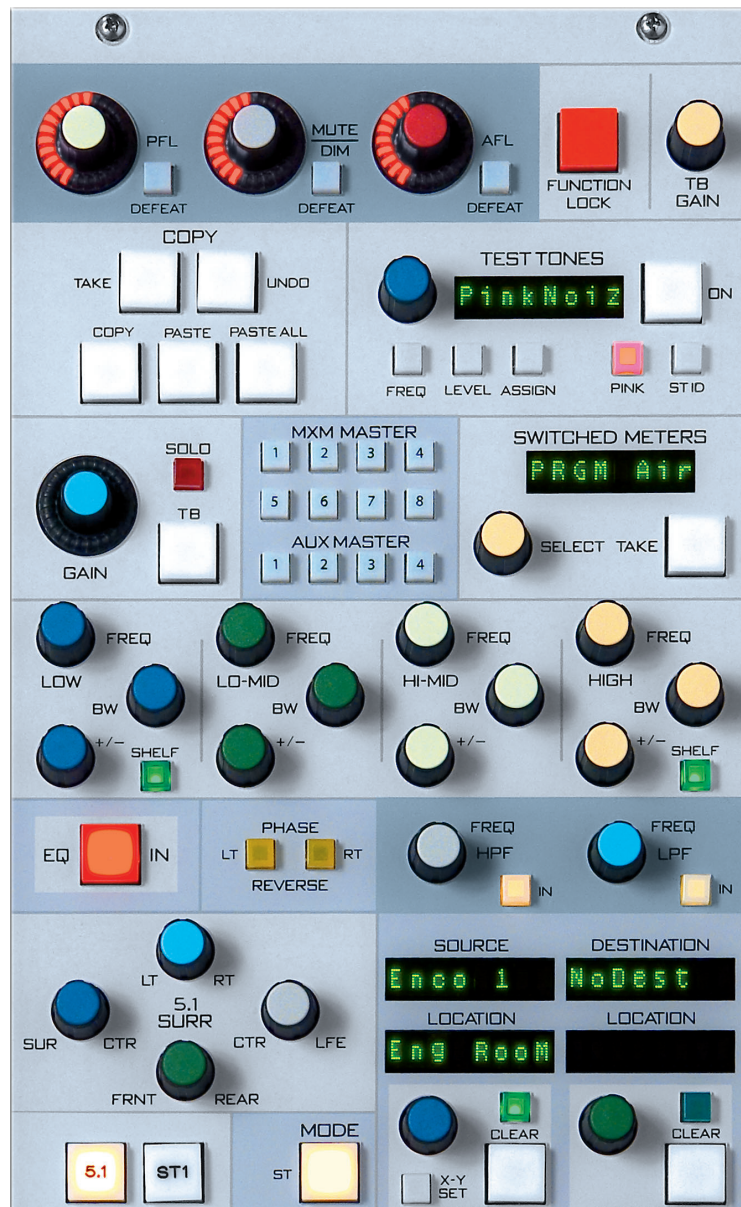
The **COPY/PASTE** section provides a convenient way to duplicate the settings of one input channel strip to any other channel strip, or even to all panel strips—a quick way to initialize a particular operator's setup.

The **MXM/AUX MASTER** section provides a consolidated means of setting the master gain level for each of those mixes as well as the ability to solo or talk back to any of the same.

The **EQ SECTION** provides four bands of full parametric equalization and separate high pass and low pass cutoff filters. Independent left and right phase switches allow correction between channel pairs or even reversing both pairs.

The **SURROUND PANNING** section allows surround positioning of mono and stereo sources or the enhancement of existing surround program content.

**BUS ASSIGN** - While each input channel has direct assign to any of the three stereo master busses and the 5.1 surround bus, a duplicate central assign section



Separate **PFL/AFL MASTER** level controls (with lightpipe indicators) are provided. **DEFEAT** switches can prevent these signals from reaching normal control room monitors if they are being used, for instance, to feed dedicated speakers instead. The **MUTE MASTER** is used to adjust the level of DIM provided on studio and CR monitor feeds; it can also be defeated.

**FUNCTION LOCK** (above) can be used to prevent changes to switch and encoder knob settings you wish to protect.

**TEST TONES** (below function lock), pink noise and dual frequency stereo ID tones are available and can be assigned by means of individual channel SET buttons (note the test tone ON button can be secured by the function lock feature).

The **SWITCHED METERS** (below test tones) can monitor virtually any mix or input source in the system.

**X-Y ROUTER** – This deceptively simple section is one of the most powerful on the surface. Any system source or mix can be routed to any system destination (signal and destination visibility software controlled). Both the name and location of sources and destinations can be displayed—i.e.: MIC #7 (in STUDIO 3), or MXM MIX (in REMTRUCK).

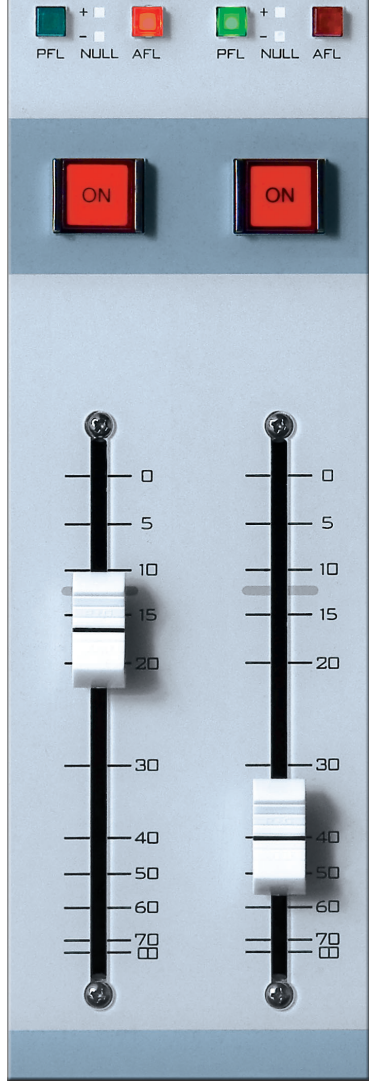


Press the **SET** button to access centralized functions for each channel strip; this also displays instant popup screens that show all EQ, dynamics and channel setting details in real time.

Optional motorized faders can provide **PAGING** (see **PAGE** button above, to right of **SET** switch) to allow the control capabilities of a much larger console within a small mainframe footprint.

**DCMS** (digitally controlled masters A thru D, located on the extreme righthand surface of the console; see status indicators directly below **SET** and **PAGE** buttons) can control the level of groups of channels—announcers, stadium mics, inserts, etc., without tying up your valuable subgroup mixes. The 4 DCMS all have individual mute switches, so they can also be operated as simple mute groups.

Channel **FADERS** (conductive plastic of course) are laid out so there is no dangerously positioned adjacent switching next to them to cause operational accidents. The motorized fader option instantly resets faders to stored levels when the console's event computer (see central control panel) executes a stored event.

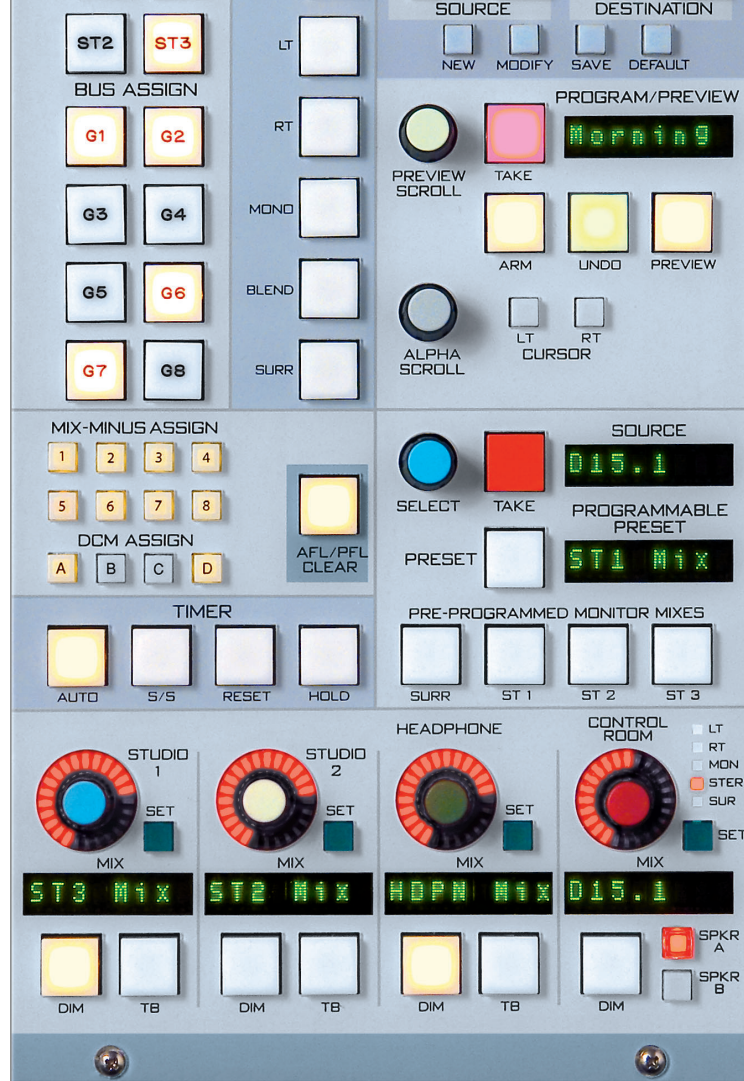


for those busses plus the eight stereo subgroup buses is provided here. This section allows subgroup assignment to the four master outputs as well. When a channel's **SET** button is pressed, these buttons illuminate to reflect current assignment for that channel and stand ready for any further reassignment.

**DCM ASSIGN** switches (accessed through channel or subgroup **SET** buttons) allow the level control or total muting of multiple fader groups using the 4 master DCM faders and associated **MUTE** switches.

The **TIMER** can be controlled manually or be triggered from machine starts.

**MONITORS** - Lightpipe encoders next to 8-character dot matrix source name displays show the console's four monitor output levels. Associated **SET** buttons select any mix or input source desired (source visibility controlled in the GUI setup). The **CR** section also has mode selection for mono, stereo or surround sound and A/B speaker selects—handy to compare studio vs. home audio reproduction.



**EVENT COMPUTER** - Virtually all channel switch and knob settings can be named, stored, previewed and recalled in this very user-friendly front panel section (no external computers required). If motorized faders are present their settings are recalled as well.

While input channels all have individual Bus-Minus send controls, the D-9 also provides eight **MIX-MINUS** outputs as well (panel extreme left) to use as a talent fold-back system. Once preset through a channel's **SET** button, the current MXM assigns are displayed and that section is available for reassignment as desired by both input channels and/or subgroups. This, combined with the MXM confidence feed system, provides a quick convenient foldback function that requires very little operator interaction once set up.

**MONITOR SOURCE SELECT** is designed to be fast and friendly. It has 4 dedicated switches for each master output: Stereo 1, 2 and 3 plus 5.1 Surround. A preset source sits ready as a hot 5th standby and a 6th source is available via the select encoder and take button to feed virtually anything to the monitors.

## At Wheatstone We Take Input from our Clients

*Our input channel strips are a result of customer feedback. And with thirty years of console building experience we know what's needed: **POWER** – yet **EASE of USE**.*

## Shared Controls – But NOT Shared DSPs!

**EVERY INPUT CHANNEL HAS ITS OWN DSP** – so it's capable of executing every command you need, whether it be EQ, dynamics, or surround sound. Assigning a surround signal to an input doesn't diminish the capability of other parts of the console as found in alternative architectures. This design approach assures that each DSP will have the processing power necessary to execute its job correctly and flawlessly. Likewise, **MIXING** is accomplished on *dedicated* mix engines. And because our Bridge system is router-based, mixes may be sent to any destination at will, and input signals can be selected to channel strips as required. These functions are **INTEGRAL** to the system, not an afterthought. **Control and signal flow are UNIFIED.**

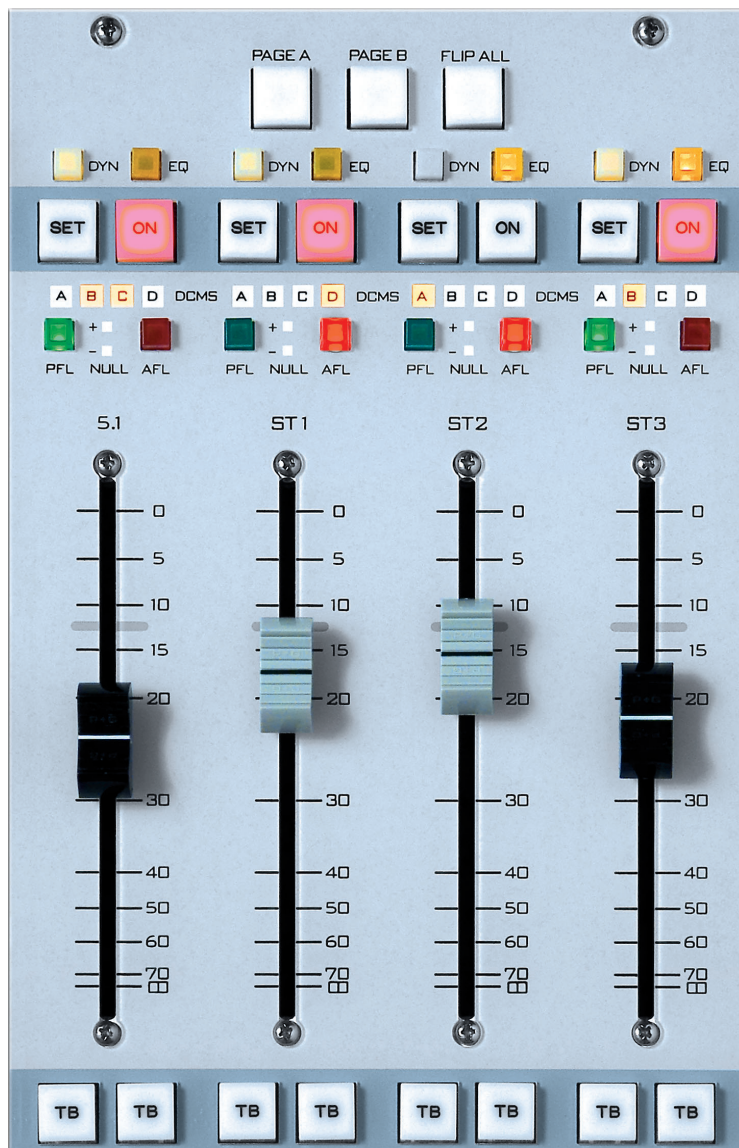


# A SENSIBLE LAYOUT

*The CONTROLS you need WHERE you need them!*  
*The DISPLAYS you need the WAY you need them!*

## D-9 SUBGROUP & MASTER MIXES

The **PAGE** system allows the function of a large console within a small footprint. For example, a console with 20 channel faders could operate forty channels of audio simultaneously. These switches let you toggle globally between A and B page settings or FLIP ALL channels to their opposite settings simultaneously.



The **MASTER** section provides dedicated faders for the 5.1 surround and three stereo outputs. Each one of these masters can also be assigned to the DCM section for global or grand master control—handy for network breaks. And of course they're also available in a motorized version. Master bus SET buttons also allow full access to the central EQ and DYNAMIC section so these all important mixes can be kept in conformity with the facility's signal chain.

## D-9 PROGRAM CONTROL PANEL

**CONFIDENCE FEED** - This system is used to assure talent that their monitor is on-line and to enable them to hear their cue when the time comes. When any of the confidence buttons are pressed, or they're all activated (CONF ALL) the talent located at any of the eight MXM destinations would normally receive a pre-live PROGRAM feed from the console (can be GUI selected to be, for instance, the master stereo out, 5.1 surround, or any other predetermined mix). When the console is finally routed on-air a remote trigger then switches the talent to their respective mix-minus feeds, indicating on-air status. The STATUS display button triggers a flatscreen pop-up window that shows all input and output connections for each of the individual MXM and confidence feeds.

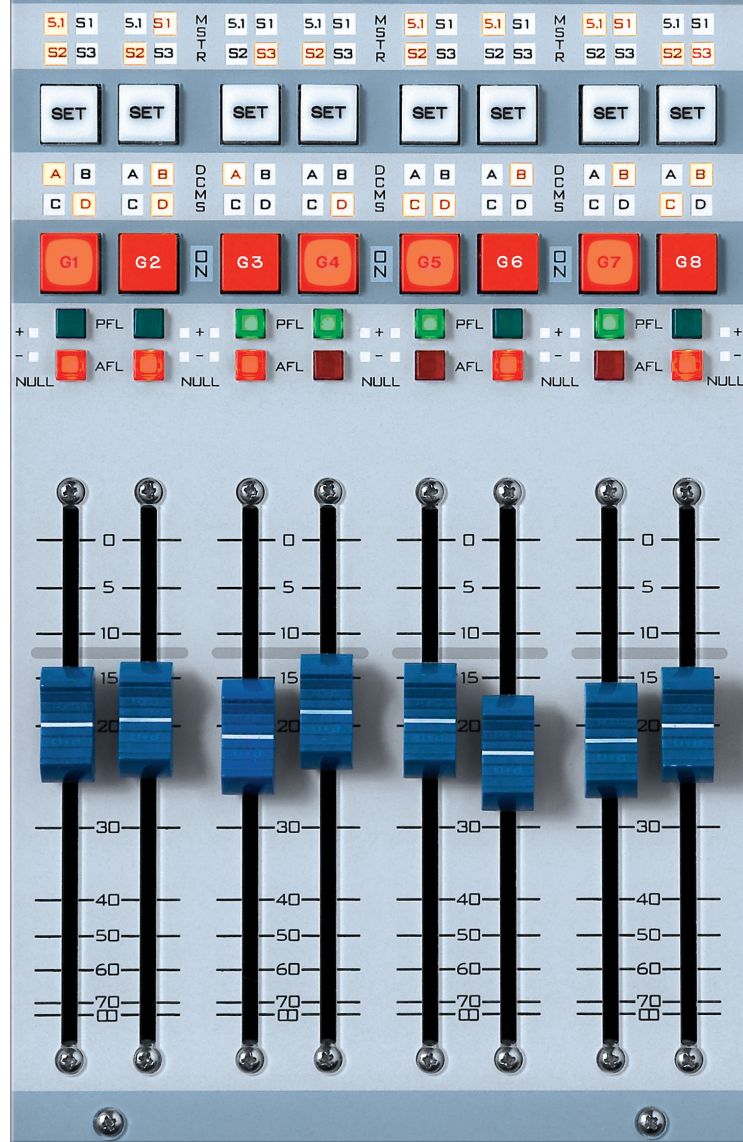
**TALKBACK PRESELECTS** - As noted elsewhere, the console already has direct TB buttons to the individual Bus-Minus outputs, the console's eight subgroup mixes, and the three studio/headphone monitors. In addition, a second talkback sub-system allows communication directly to the eight MXM masters and the four stereo AUX masters.



The **LIMITER** section is accessed through any of the input channel or master channel SET buttons. When selected, that channel's ID is displayed locally in the limiter section, and its dynamic ON/OFF status activated centrally (local EQ and DYN switches are also available on input and master fader panels). Because each input and output channel possesses its own dedicated processing DSP, allocation limitations do not exist, and the digital precision of the processing is maximized for smooth and accurate control. Limiter parameters are displayed graphically and numerically in the popup dynamics window. Because each input channel has its own input and gain reduction metering at all times, the operator is kept continuously informed.

**DISPLAY** - These switches add further meter versatility, allowing meter switching on smaller frame assemblies, subgroup popups, or AUX/MXM metering. The only way an operator can know a proper feed is to meter it. The HELP button brings up an instant comprehensive help system—great for the interns and handy for the quick refresher. A spare button is provided for future application.



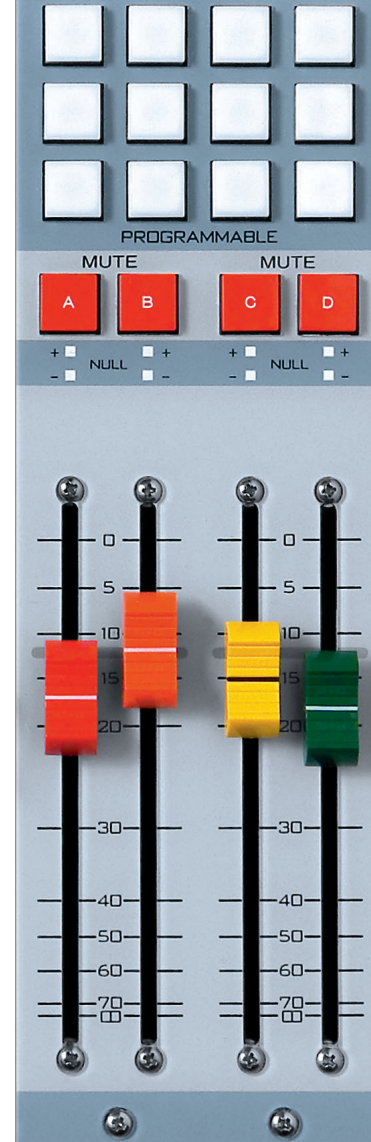


The **SUBGROUP** section has eight stereo faders (motorized faders optional) which control those input channels assigned to them via individual SET buttons. SUBGROUPS can be further reassigned to MASTER output busses and DCMs. Each subgroup has its own TB button to keep communication fast and easy, and the convenience of both AFL and PFL listen switches. It should be pointed out that these subgroups are in fact mixes, not just level controls (like the DCMs). These groups therefore can also be routed as outputs to feed talent or a recording system.

## Confidence-Instilling **SIMPLICITY**

*ALL the GROUPS, ALL the MASTERS in one uncluttered easy-to-reach section. And because the D-9 provides dedicated faders for all outputs, it means error-proof, one step access.*

This Talkback Preselect section is yet a further enhancement, whereby four of the most used destinations can be programmed into adjacent switches with eight character dot-matrix displays indicating the preset. In Live TV communication is VITAL!



**PROGRAMMABLE SECTION** – a REAL Power Tool! Can be used to trigger surface or system-wide salvos, contact closures on optical I/O cards (that can be located in the main equipment room or in remote bridge cages at point of source locations), or to control virtually any specialized studio or station function envisioned.

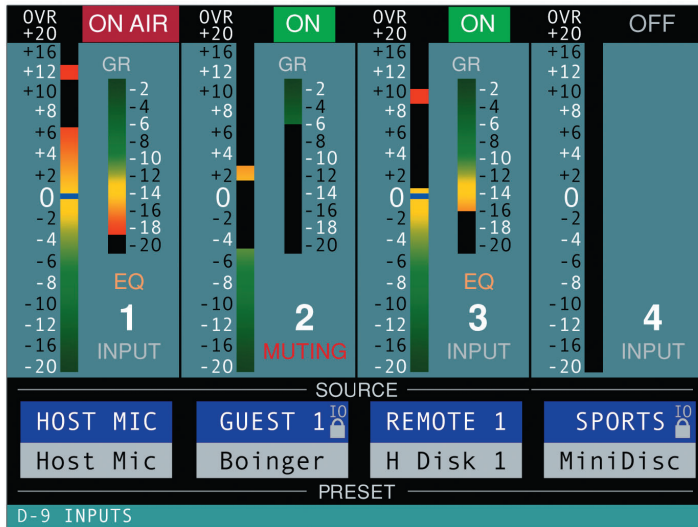
**DCMS/MUTE GROUPS** – This section adds an additional layer of control that can refine the mix. Numerous inputs could be assigned to DCM "A" (i.e., announcer mics); stadium mics could all be on DCM "B"; and on-field mics could be assigned to "C", so a balance of those mixes can be centrally controlled. Any of the assigned inputs can be instantly muted by toggling the red MUTE buttons (a traditional function also found on older analog consoles). Additionally, the D-5.1 provides DCM access from the subgroup faders and any of the five master mix faders.

## **POWER TOOLS!**

*Think of this panel as the ACCESSORIES. We could build the console without it, but with it usefulness is multiplied. The talent can monitor in confidence; dynamics can be kept under control, hot talkback destinations are right there big as life. And with the programmable section we can provide functions that YOU think of. The DCM faders add a final layer to the mix.*

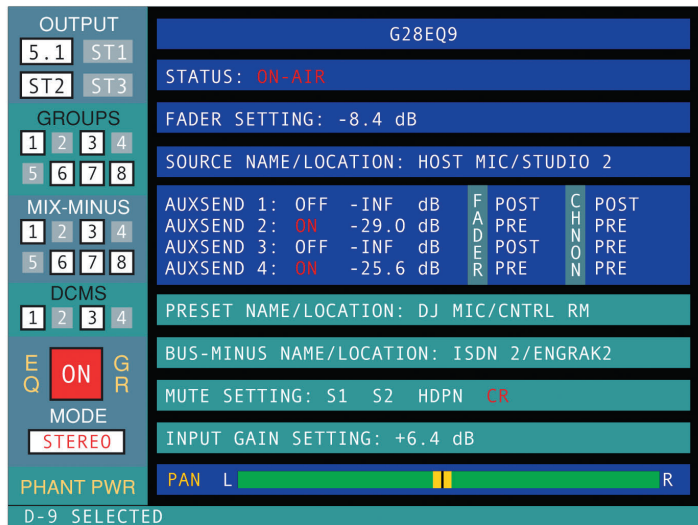


# EXCELLENCE IN METERING



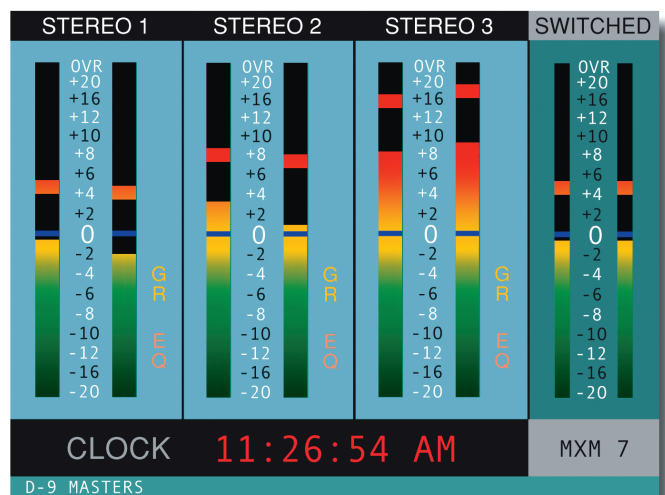
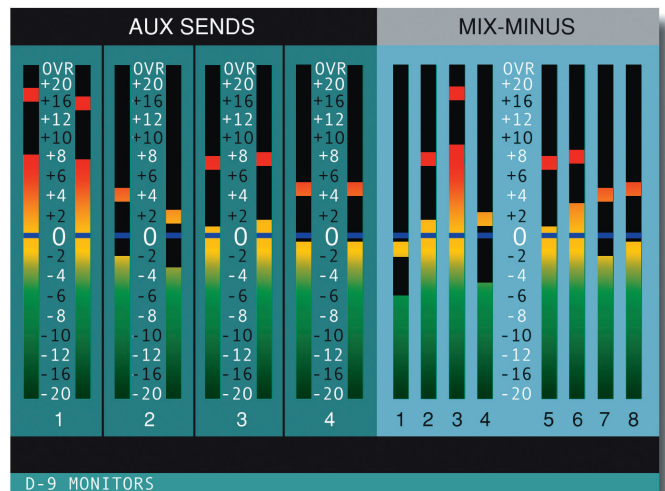
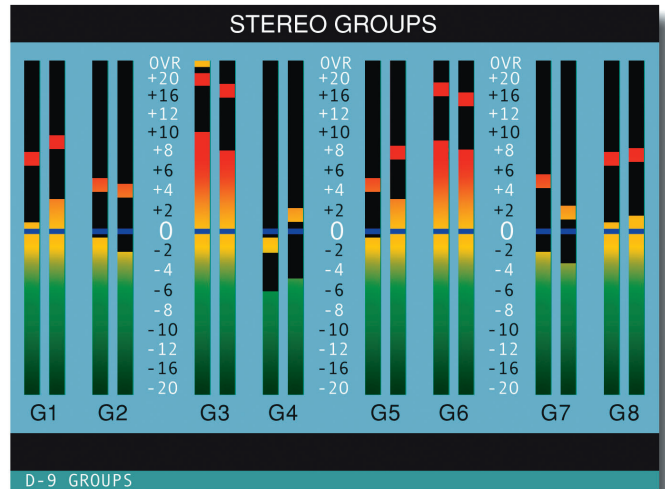
## INPUT CHANNEL DISPLAYS

IT'S ALL THERE on bright high resolution LCD monitors: dual ballistic channel metering in continuously variable color showing both VU and a flying dot peak reading system; gain reduction metering; channel status indicators that alert the operator when a channel is ON or OFF and also detects and tells the operator when that channel's ON signal has been routed to a defined ON-AIR destination, reducing embarrassing errors. The monitor also displays the current channel source and its alternate preset source.



## SET INFO – THE OPERATOR'S DIRECTORY

When any channel strip's SET button is pressed this index display pops up with an instant overview of all relevant fader, knob and switch settings. The operator can also see pre-programmed system settings such as studio or control room mute functions and even read the location of the channel's selected input source and designated bus-minus feed.



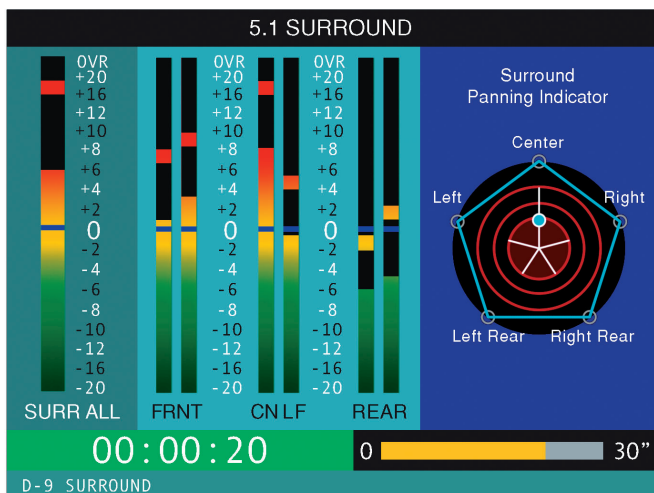
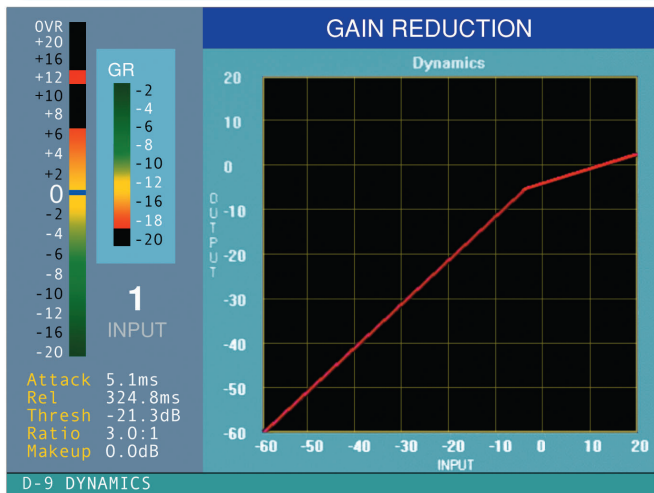
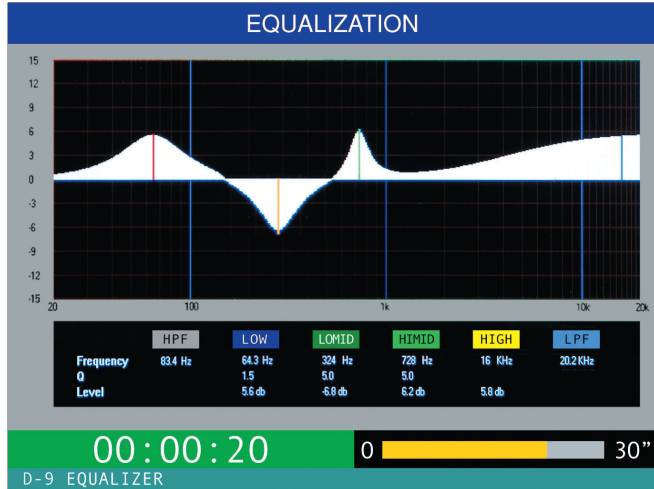
## MIX BUS METERS

The D-9 doesn't take shortcuts in this vital area! If there's a mix, it's monitored. All in realtime continuous color high resolution displays. Complete with a 40dB display range and peak overload indicators.



## EQUALIZATION AND DYNAMICS

Just hit a channel's SET button to display these pop-up screens. Get realtime equalization curves (with color-coded center frequencies), gain reduction curves, settings and metering, plus regular channel metering.



## 5.1 SURROUND SOUND

Not only does the D-9 route surround sound but you can CREATE it as well using its 5.1 panning system and associated realtime display. Adjacent composite level metering is provided as well.

## THE BUILT-IN HELP SYSTEM

For a true fast track learning curve, just push the HELP button in the console's meter panel display section and you're immediately into the built-in D-9 HELP system. Twirl the encoder knob directly below the screen to scroll quickly through topics. Press the same knob to instantly bring up clear, concise instructions on operational features and "how to" topics.

```
Wheatstone D9 Digital Audio Mixer Help System v1.1

HELP SYSTEM OVERVIEW
+ How to use the Help system ( Press the TB knob at top)

UNDERSTANDING the BASICS
+ Operational Overview

INPUT HELP
+ Storing Source PRESETS
+ Using MixMinus
+ Using BUS Minus
+ Using AUX Sends
+ Surround Panning
+ DCMS - VCA Style groups
+ Copy and Paste

MONITOR and SYSTEM HELP
+ MORE TOPICS
```

```
Wheatstone D9 Operational Overview

There are two basic concepts you should be familiar with in
order to effectively operate this console:
SET button use and signal routing.

Input SET Buttons
Notice that each input channel strip has
a button located above the fader marked SET.
Pressing the SET button on a given channel
gives you access to a centralized control section for all
input channel strips. Functions accessed in the central
control section include MODE, PAN, MIX-MINUS ASSIGN, and EQ
and Dynamics settings. An LCD display also switches to
display the settings currently defined for that channel.
```

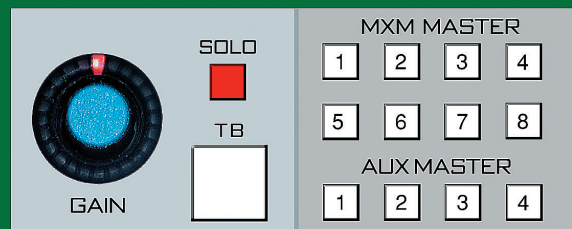


[MORE >>](#) [<< BACK](#) [^^ TOP](#)

D9 INPUT HELP Using MIXMINUS - MXM (continued)

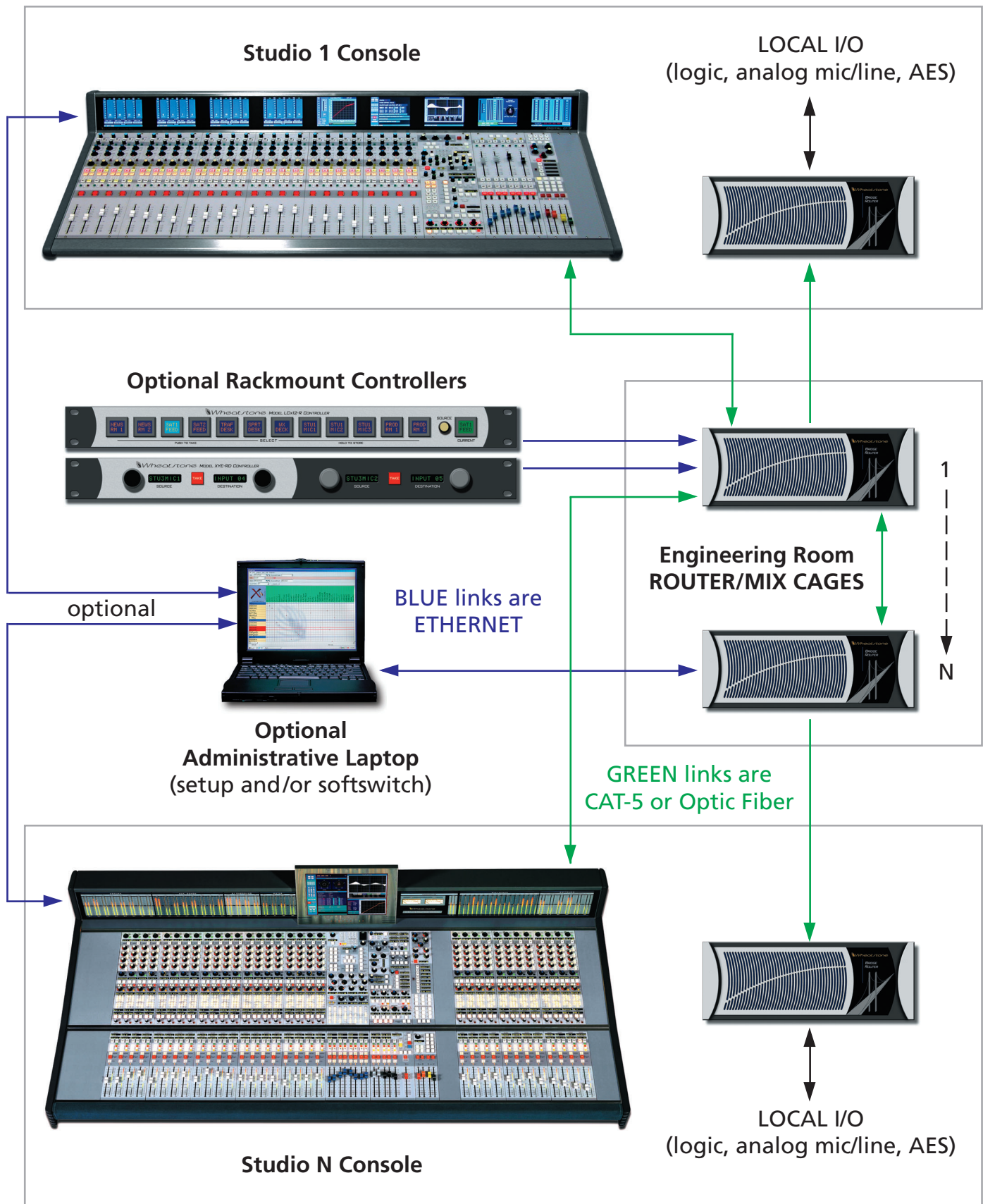
Adjusting MXM Master Volume

- \* Press the desired MXM MASTER SET button.
- \* Use the GAIN knob to set output level.
- \* Use SOLO to listen to the selected MXM.
- \* Use TB to talk to the MXM output.



[<< BACK](#) [^^ TOP](#)





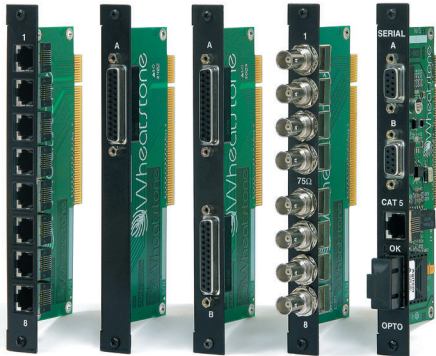
**EFFICIENT ARCHITECTURE** — Since WHEATSTONE's Bridge mixing system is router-based, all sources are shared and system mixes can be delivered to any required location and changed at will, meaning you can feed your transmission chain from any console location or route any mix to any talent location. Furthermore, router mix engine cages can be linked together in a central room or be remotely distributed by means of single optical or CAT-5 links, letting you put your I/O right where it's needed. *Because all these resources are shared there is a tremendous economy in multi-surface systems.*



## INTERCONNECT FRIENDLY!

You can choose from a family of I/O panels to match your equipment or interface requirement. Pick from 110 ohm balanced DB connectors or 110 ohm CAT5 connections.

There's also a 75 ohm BNC option—a real plus for compatibility in television facilities. Cage-to-cage network connections can be made by CAT5 or optical fiber links.



## A System is only as reliable as the power it receives.

*An external supply is just that—it keeps the heat and high current where it belongs—AWAY from the electronics.*

You can choose from a single rackmount power supply or the convenient modular system shown above. It lets you have one to four independent power supplies plugged into one 3-1/2" rackspace—each with its own AC power cord, DC output and front serviceable cooling fan. The snap-on front cover hides all mounting screws and matches the style of our main Bridge router cage.

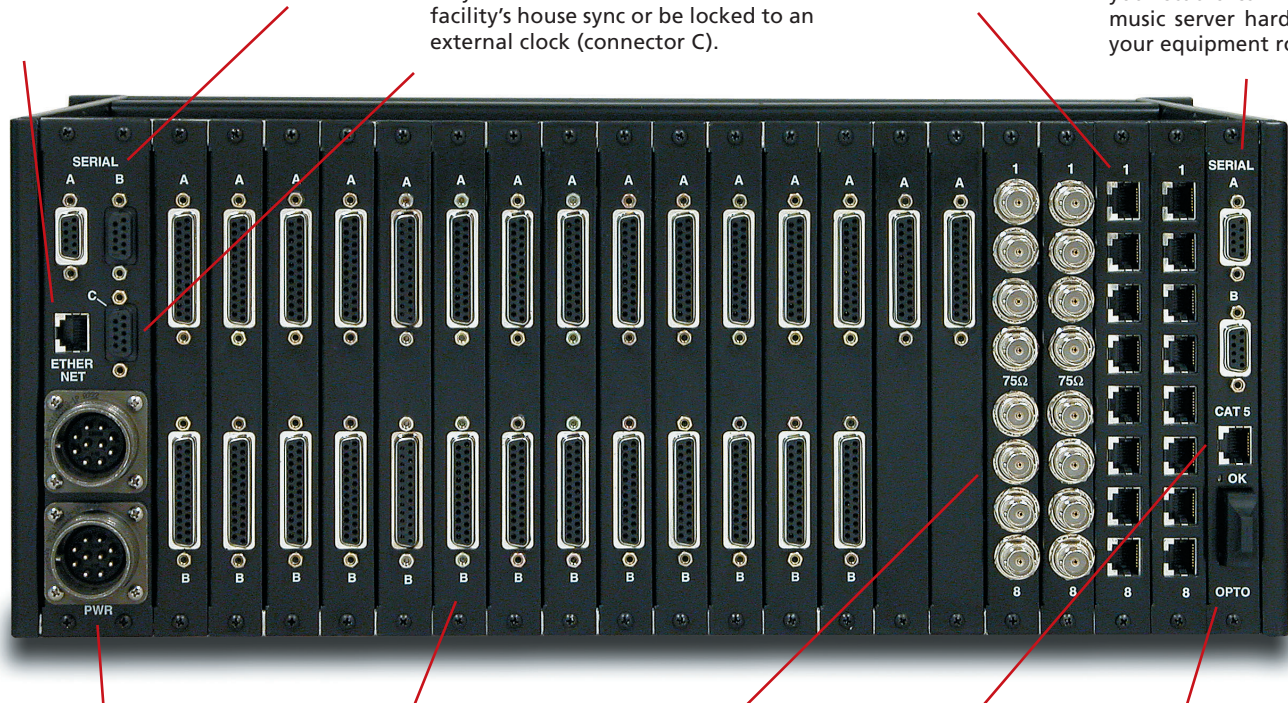
**ETHERNET** This port allows interface to a desktop computer for system configuration, or to an Ethernet hub that can tie to control panels or control surfaces.

**SERIAL INTERFACE** These connectors (A and B) can interface to station automation and serial XY controller devices that utilize RS-232/485 protocols.

**SYNC IN/OUT** Because the Bridge system utilizes sample rate converters on all digital inputs it is not a requirement that the system be synced. However, some system designers prefer to use a house sync to accommodate existing audio equipment. The Bridge system may either act as the source of the facility's house sync or be locked to an external clock (connector C).

**CAT5 CONNECTORS** For those engineers who prefer the simplicity of CAT5 interconnect and the economy of such cabling, these connectors can really simplify installation.

**SERIAL A and B** Think of these connections as a simple RS-232/485 transport that can link those signals between two cages. For example, the music server terminal in your studio can feed the music server hardware in your equipment room.



**POWER SUPPLY** DC power supply connections are made by means of metal mil spec multi-pin connectors that provide a secure cable link to an external rackmount power supply. Two connectors allow dual supplies for failsafe redundancy.

**DB-25 I/O CONNECTIONS** Gold-plated DB-25 connectors with threaded locks provide a secure means for digital and analog audio connections. They also provide plenty of I/O pinouts for opto-isolated logic modules.

**BNC CONNECTORS** The industry standard in video-oriented facilities, these are fitted with 75Ω transformers to assure compatibility with existing gear and eliminate the need for awkward interface boxes.

**CAT5** Provides a convenient cost saving method for linking Bridge router and Bridge satellite cages together.

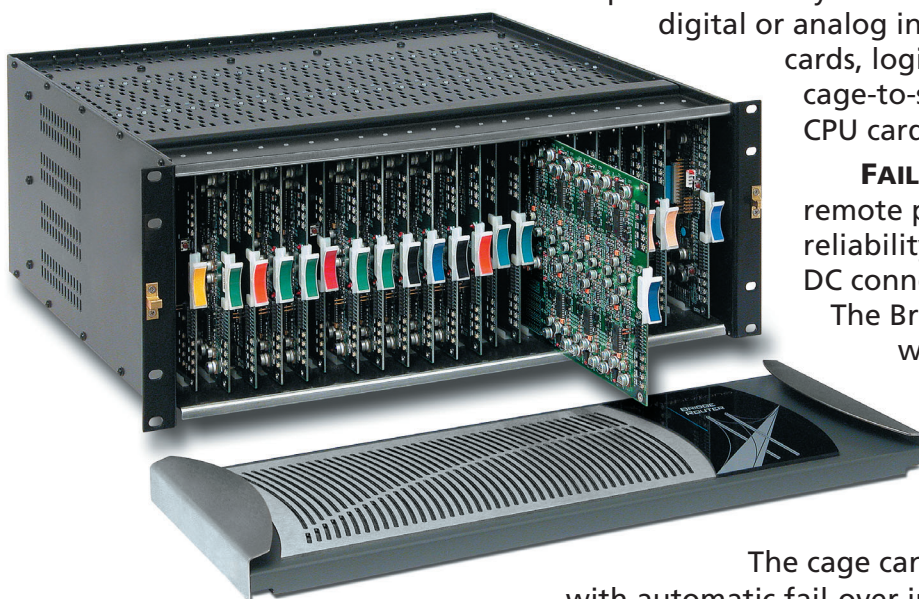
**OPTICAL CONNECTOR** Fiberoptic cables provide the ultimate in signal security. You can link together cages or satellites using one or more of these ports.





# ***The Wheatstone BRIDGE Router/DSP Mix Engine***

## **OUR BRIDGE ROUTER IS THE MOST VERSATILE CAGE AVAILABLE!**



It provides twenty universal card slots; you can choose from digital or analog input cards, digital or analog output cards, logic I/O port cards, mix engine DSP cards, cage-to-satellite network cards, and of course CPU cards—and this is just for starters.

**FAILSAFE DESIGN** — The Bridge cage uses remote power supplies for the ultimate in reliability and is fitted with two metal mil spec DC connectors to allow dual supply operation.

The Bridge can also support dual CPU cards with automatic switchover and system reporting in the event of a primary failure. Naturally, configuration information is stored in nonvolatile RAM; you can also save this same information onto an external laptop.

The cage can even house a standby mix engine card with automatic fail-over in the event of a mix engine failure.

**WHEATSTONE KNOWS RELIABILITY IS *EVERYTHING*.**